DOCUMENTS DEPARTMENT

CLOSED STACKS

15

GOVERNMENT INFORMATION CENTER
SAN FRANCISCO PUBLIC LIBRARY

SAN FRANCISCO
PUBLIC LIBRARY

REFERENCE
BOOK

Not to be taken from the Library

OCT 6 1991

3 1223 90188 9494

Digitized by the Internet Archive
in 2010 with funding from
San Francisco Public Library

http://www.archive.org/details/appendixtojourna18872cali

APPENDIX TO THE JOURNALS

OF THE

SENATE AND ASSEMBLY

OF THE

TWENTY-SEVENTH SESSION

OF THE

LEGISLATURE OF THE STATE OF CALIFORNIA.

Volume II.

SACRAMENTO:
STATE OFFICE, : : : : P. L. SHOAFF, SUPT. STATE PRINTING.
1887.

x328.794 C12:27 1
46544

CONTENTS.

1—Sixth Annual Report of the State Board of Prison Directors, 1885.
2—Seventh Annual Report of the State Board of Prison Directors, 1886.
3—Biennial Report of the Board of State Harbor Commissioners, 1886.
4—Report of the State Board of Equalization, 1885–86.
5—Biennial Report of the Directors and the Superintendent of the Insane Asylum at Stockton, 1886.
6—Biennial Report of the Trustees and the Resident Physician of the Napa State Asylum for the Insane, 1886.
7—Report of the Trustees of the California Hospital for the Chronic Insane, 1886.
8—Ninth Biennial Report of the State Board of Health, 1886.
9—Report of the Board of Dental Examiners, 1885.
10—Report of the Board of Dental Examiners, 1886.
11—Seventeenth Report of the Board of Directors and Officers of the California Institution for the Education of the Deaf and Dumb, and the Blind, 1886.
12—Report of the Board of Directors of the Industrial Home of Mechanical Trades for the Adult Blind, 1886.
13—First Annual Report of the Trustees of the California Home for the Care and Training of Feeble-Minded Children, 1885.
14—Second Annual Report of the Trustees of the California Home for the Care and Training of Feeble-Minded Children, 1886.
15—Report of the Board of Trustees of the State Normal Schools, 1885–86.

SIXTH ANNUAL REPORT

OF THE

STATE BOARD OF PRISON DIRECTORS

OF THE

STATE OF CALIFORNIA,

FOR THE THIRTY-SIXTH FISCAL YEAR, ENDING JUNE 30, 1885.

SACRAMENTO:
STATE OFFICE, ... JAMES J. AYERS, SUPT. STATE PRINTING.
1885.

STATE BOARD OF PRISON DIRECTORS.

JOHN BOGGS, President	Colusa.
CHARLES SONNTAG	San Francisco.
W. C. HENDRICKS	Oroville.
J. H. WILKINS	San Rafael.
R. T. DEVLIN	Sacramento.

OFFICERS OF THE SAN QUENTIN PRISON.

PAUL SHIRLEY	Warden.
GILES G. CRANDALL	Clerk.
THOS. B. EAGLE, M.D.	Physician.
Rev. WM. H. HILL	Chaplain.

OFFICERS OF THE STATE PRISON AT FOLSOM.

JOHN McCOMB	Warden.
JOHN M. MINER	Clerk.
Dr. F. C. DURANT	Physician.
JAMES GAULEY	Moral Instructor.

REPORT.

NOVEMBER 1, 1885.

To his Excellency GEORGE STONEMAN, *Governor of California:*

The State Board of Prison Directors herewith submit their annual report for the last fiscal year, together with the reports of the officers of the State Prison at San Quentin and the State Prison at Folsom.

In our last report we gave a detailed statement of the financial difficulties under which we labored, and the means we adopted to secure the necessary funds with which to pay the expenses of the prisons. At the session of the last Legislature we laid the whole matter before the respective committees of the Senate and Assembly. They approved our course, and made the necessary appropriations to pay the deficiencies. The Legislature also were thoroughly satisfied with the importance of making suitable appropriations for the future two years, and made an appropriation of $130,000 per year for the support of the prison at San Quentin, and $90,000 per year for the support of the prison at Folsom. It has been and will be our endeavor to so retrench expenses that at the next session we will be able not only to dispense with the necessity of deficiency bills, but to show a surplus unexpended.

At the San Quentin Penitentiary there were confined, on July 1, 1884, 1,155 prisoners. On July 1, 1885, this number was increased to 1,212. All such as were not disabled by disease or physical incapacity have found employment in the various departments, as shown by the Turnkey's report.

The most extensive industry of the institution is the manufacture of jute goods. Owing to an unparalleled depression in this business, the financial result for the year is not as satisfactory as might be desired. Although we were able to purchase a supply of the raw material at the unprecedentedly low price of 3.55 cents per pound, the shrinkage in value in the manufactured article, amounting to forty per cent, has made it impossible for us to show any considerable profit. It has been only by the strictest economy in every detail, and by the most exacting retrenchment, that the mill has been operated without a loss. It is well, in this connection, to consider the fact that in Calcutta, with every advantage of cheap labor and market, several mills have been obliged to suspend, after disastrous losses. The outlook for the future is, however, encouraging. We are reaching out for trade in jute goods that promises much better returns, and it cannot be expected that the market will long continue in its present shattered condition.

The other industrial departments show substantial profits. For fuller particulars in this connection see Warden's report.

In addition to aiding materially in the support of the prison, the earnings have been drawn on for the construction of a two-story brick building for the Resident Physician, and for an extensive addition to the female department, at a cash outlay of $6,962 05. The latter improvement was very necessary, and has resulted most satisfactorily to the unfortunate women confined here. The female department, now one of the most complete in the United States, is in charge of a competent matron, under whose supervision the inmates are employed at labor, useful at once to the institution and themselves. Many other improvements are contemplated, which we hope to detail in our next report.

The payroll of officers and guards has been materially reduced, and expenses curtailed wherever possible, the saving aggregating many thousand dollars annually.

The discipline among convicts has been excellent. At no time during the history of the institution has there been readier obedience to officers or more cheerful disposition to labor.

Following the Warden's recommendation, prisoners are no longer allowed to use the small per diem given by the State for faithful work. This now accumulates in the Warden's office, so that hereafter discharged prisoners may not go into the world absolutely penniless. We hope for good results from the new system.

The health of the institution, as shown by the report of the Resident Physician, has been excellent.

For details of the boys' department and library we refer to the report of the Chaplain.

In the prison at Folsom there were confined, at the close of the last fiscal year, 561 prisoners. The prisoners at this institution are engaged in quarrying stone and preparing the same for the various purposes for which it is to be used. A large amount of revenue in the past has been obtained from the sale of granite for street work in San Francisco; but the general depression in business and the fierce competition of others engaged in the business of quarrying stone, have caused a diminution of the demand for such material from the prison. We believe, however, that a large demand can be created in this State for monuments and other work of that description, and the Board are endeavoring, by exhibitions of monuments and other means, to call the attention of the public to the character of the work done at the prison. We believe that when it is once generally known that the finest kind of stone work can be done at the prison, the sale of monuments and tombstones will be greatly augmented. It is not our intention to place the price of this work below that obtained by private individuals, but the claim for patronage will be rested on the celerity with which work can be executed, as most of the fine work is imported from Scotland.

During the past year many improvements have been made in the grounds connected with the prison. A new road along the river has been constructed, a new stone wall has been erected, and an addition to the present building is now in course of erection.

In this prison the system of paying convicts for labor performed has not been practiced. Convicts, like all other human beings, require encouragement when they are endeavoring to be faithful and diligent. In Folsom the qualities of faithfulness and diligence in the prisoners are fostered, and compliance with the prison rules is secured, by a system of rewards and privileges. A prisoner when he enters the prison is required first to feel that he is subject to discipline, and that obedience to all prison rules and regulations is absolutely required. But by obedience to the rules and diligent labor, he is also shown that he may obtain better food and some privileges not given to the less deserving prisoners.

For any infraction of the prison rules, the privileges he enjoys are taken away from him, and he can only regain them by a continued course of good behavior. We find from experience that this system produces the best results; that the prisoners are industrious, and except in a few exceptional instances, as might be naturally expected in a penal institution, are eager that all disciplinary rules should be rigidly enforced.

One objection that has sometimes been made to the establishment and maintenance of a prison at Folsom was the unhealthy character of the locality. But that this objection is totally unfounded is conclusively shown by the reports of the Warden and Physician, to which we respectively call attention.

An inspection of the annexed report will show that at the close of the last fiscal year there were incarcerated in San Quentin one hundred and forty-nine prisoners, and at Folsom thirty-five prisoners, under twenty-one years of age. This makes a total of one hundred and eighty-four young men who have not yet attained their majority confined in our State Prisons. Under the present condition of affairs it is impossible to prevent these boys from coming into contact and association with hardened criminals. While the officers at both prisons do all in their power to aid in the reformation of these young criminals and to teach them habits of industry, still communication with confirmed criminals can have no other than a deleterious effect upon them. We call your attention to this subject to show the necessity that will soon exist, if it does not already now exist, of providing suitable quarters, distinct from the main buildings, in which the very young prisoners may be kept, and thus be saved from the evil effect of association with those who know no other life than one of crime.

In our last report we spoke of the temptations surrounding a convict after his discharge, and the difficulties which he encountered in securing employment, and of the disgrace that attached to him because, perhaps, in an unguarded moment, with no evil intent, he committed some act forbidden by our laws, for the commission of which society, for its protection and preservation, is compelled to mete out a punishment which may show the wrongdoer that the laws must be respected, and at the same time may deter others from giving way to their impulses or passions. Our experience in the past year has but confirmed what was there said. We in that report suggested that there should at one of the prisons be a refuge where a discharged prisoner might obtain work on his release from prison; the refuge to be subject to the management of the Warden, and carried on under strict discipline. We can do no more than reiterate such statements and to call your attention again to the suggestion.

Perhaps the Penological Commission, provided for at the last session of the Legislature, may be able to suggest some means of enabling the discharged convict, who has reformed, of earning once more by his labor, an honest livelihood.

We cannot close this report without touching on the much discussed and little understood matter of pardons and commutations. Following the spirit of the Constitution, your Excellency has seen fit to refer to our body all applications for pardon presented to you. These we have examined and have recommended according to our best ideas of justice and right, and you have, as a rule, followed such recommendations. In our judgment the State has benefited by your course. Many unworthy cases are weeded out by this Board, and by investigations held at the prisons and elsewhere, the opportunity for misrepresentation of facts is minimized.

We have carefully avoided recommending to you any of the recognized criminal class except in a few cases where the physician certified that the applicant was about to die. Favorable action has been based on doubt as to guilt, excessive punishment, or unusual service to the State, backed up by a thorough conviction of the prisoner's reformation.

The result is at least satisfactory to ourselves, adverse criticism to the contrary. We believe that you have made the most creditable line of pardons and commutations that any administration of the State can show, and in this opinion the officers of both prisons agree. The fact that of those to whom executive clemency has been extended only two have returned to the two penitentiaries for the commission of new offenses is of itself significant.

We desire to speak of the zeal, fidelity, and energy of the various officers at both prisons. We have always found them attentive to duty and eager at all times to carry out the instructions of the Board. At both prisons the officers are constantly endeavoring to bring them up to the highest standard of penal institutions, and in the business management of them they show the utmost sagacity, prudence, and economy.

In our last report we were pained to announce the death of Charles F. Robbins, one of the Directors, and in this we have the sorrowful duty of chronicling the death of Daniel W. Gelwicks, a member of the Board, who died in last November. His wisdom and counsel are sadly missed. By his many qualities of courtesy and manliness he endeared himself to his fellow members, and we regret that by his untimely death the State lost an efficient and able officer, a pure man, and a public-spirited citizen.

The Board in its constitution is purely non-partisan, and the provisions of the Constitution in creating a Board of this character have been faithfully observed. We have endeavored to conduct the prisons as business institutions, and with regard solely to the public interest. How well we have succeeded others must judge.

In conclusion, we desire to acknowledge our appreciation of the many courtesies extended by you to the members of the Board.

Signed:

JOHN BOGGS.
JAMES H. WILKINS.
ROBERT T. DEVLIN.
CHARLES SONNTAG.
W. C. HENDRICKS.

REPORT OF THE WARDEN

OF THE

State Prison at San Quentin, California.

WARDEN'S REPORT.

Warden's Office, California State Prison, San Quentin,
California, September 22, 1885.

To the honorable State Board of Prison Directors:

Gentlemen: I have the honor herewith to present my annual report as Warden of the State Prison at San Quentin.

The several departments of industry have been operated as follows, viz.:

Jute Department—By purchase of raw materials and sale of product for account of State of California; the State owning the whole plant.

Sash, Door, and Blind Department—By the manufacture at a stipulated price per piece, private individuals owning the plant, and the State furnishing power and labor.

Furniture Department—By the manufacture at a stipulated price per piece, private individuals supplying all the materials, and the State owning the plant and supplying power and labor.

Tannery Department, and Harness Department—By the manufacture at a stipulated price per piece, private individuals supplying all raw materials and the movable plant, and the State supplying the permanent plant, the power and labor.

Brick Department—By the manufacture by the State supplying all the materials, labor, etc.

Every department has had the assistance of the best procurable and most competent management, with a view to the best financial results to the State, and a thorough appreciation of the ultimate benefit to the prisoners, by careful instruction in mechanical arts, and well established habits of continuous industry and application.

The most comprehensive industry at which we have been occupied has been the jute department, giving occupation to more than three hundred prisoners. This industry was inaugurated with the apparently well grounded anticipation that, within a very few years, the jute plant would be largely cultivated in this State, and that in addition to the occupation of prisoners in manufactures non-competitive with honest free labor, a great stimulus would be given to a new product of agriculture. This hope has not been accomplished, notwithstanding large quantities of jute seed have been distributed from this institution, and also very considerable efforts have been made to that end by Mr. Chabot, of Oakland. To operate this department all of the jute must be procured from Calcutta, and owing to the manner in which the purchases are hampered by lack of ready funds, we are compelled to purchase through commission houses in San Francisco, upon samples shown immediately after the first of the crop is baled. We have been singularly fortunate the past year in securing a full supply at a cost of $3\frac{55}{100}$ cents per pound average, which has enabled us to close the fiscal year with a showing greatly in excess of what was anticipated. The season of 1884–5 began with sales from our factory at 7½ cents for grain bags, and the season of 1885–6 closed with sales of Calcutta bags in San

Francisco as low as $4\frac{1}{2}$ cents, or a shrinkage of 40 per cent in values. As nearly as we have been able to learn, the lowest cost of any invoice of bags imported into San Francisco last season, or this, was $5\frac{63}{100}$ cents each. In the face of this low cost, still lower prices have been accepted, netting a loss of $1\frac{13}{100}$ cents per bag. The whole year has been characterized with steadily declining values. In October last we sold all our holdings at auction, as per order of the Board, and as authorized by law, realizing $5\frac{57}{100}$ cents per bag, which time has proven to have been a very fortunate sale.

The operations for the whole year, including every item of expense and repair, with the factory in absolutely perfect order, show a profit on June thirtieth, of $\$6{,}402\frac{60}{100}$, as a result, notwithstanding the steady decline in values. From this amount, however, must be taken the sum of $\$5{,}737\frac{38}{100}$, the amount paid in per diem to the prisoners employed in the jute factory. It is questionable whether this sum is properly deducted from the earnings of the department. The system of per diem was inaugurated by a previous administration, and has been continued, with the conviction that the result is of advantage to the prisoner, and very largely contributive to the maintenance of discipline. My opinion is that the sums so expended, if the system is continued, should be charged to a separate account, and not made to appear as a deduction from departmental earnings. This is a matter to which I invite the attention of the honorable Board, together with the continuance of the per diem system.

We are carrying at this date manufactured goods at ruling market rates valued at $\$34{,}668\frac{67}{100}$, and 1,750 bales of jute which cost us $\$24{,}686\frac{60}{100}$. The consideration of your honorable body is specially asked to the line of policy to be pursued with regard to the future. There can be no question as to our having reached the end of the decline in values. In grain bags there is little to be hoped for in profits, and we may meet a loss on the stock we carry over. Our attention and exertions have been largely directed to the opening of new channels for our products and new lines of goods. We have thoroughly canvassed the whole coast for the sale of ore bags, and the Hawaiian Islands for the sale of sugar bags, and are very much encouraged with the results thus far. If successful in securing the Hawaiian Island trade, that alone in bags, with what piece goods we will be required to furnish the San Francisco market, will take the full capacity of our factory. The development in the southern part of the State of a new industry in paper fiber will probably give us very large orders in piece goods, possibly a million yards per annum. We would appear to have reached the turning point in our jute business, and the necessary preparations must be made for resupplying our annual wants of raw jute. We are expecting by the next steamer from China sample bales of this year's crop of jute. Sailing vessels leave Calcutta in November and December for the port of San Francisco, and only during those months, as a rule, and we must avail ourselves of these sailers, as steamer freights are too expensive for this bulky freight with any prospect of profit from the output. It may be policy to close the mill during a portion of the short Winter days, as we will then have accumulated a good stock of all marketable goods, and we will then have a small stock of raw material with which to commence as the days lengthen and before any new stock can arrive.

The Sash, Door, and Blind Department has been operated upon the plan, which in my opinion, is the nearest approach to a perfect system of any yet developed for the employment of the criminal element. The State owns neither the plant nor the raw materials, and has no interest in the disposition of the output, but simply supplies the labor, both free and convict, and the power, and manufactures at a stipulated price per piece. The financial result is an earning for the fiscal year of \$37,144$\frac{14}{100}$, and a payment of per diem to the prisoners of \$5,770$\frac{80}{100}$. Nearly two hundred prisoners are employed in this department. There is no difference in the care exercised over the prisoners in this department from that of any other department. Their every want and necessity is amply provided for, and as perfect discipline maintained as in all the other departments. There is no investment of State funds in expensive machinery and plant, and no fluctuating between loss and profit or dependence upon a changeable market. The purchase of raw materials and the disposition of the manufactured articles is in the control and at the risk of private capital, in the hands of private individuals, who thoroughly understand every detail of the business in which they are engaged. A comparison of results will show how much one system is to be preferred to the other. The only improvement I can suggest is the one to which the attention of your honorable body has been frequently called, *i. e.*, the propriety of having the free skilled foremen the employés of the private manufacturers rather than upon the State payroll. There seems to be a radical inconsistency in the employment by the State of skilled foremen, whose interests accord better with those of the private capitalists, than with those of the State.

The Furniture Department was formerly operated upon the contract system, but under the change of Constitution, the plant, consisting of valuable machinery, was taken over to account of the State, and large quantities of lumber and materials were purchased to operate the department for account of the State. The same objection to this system will obtain equally with the manufacture of furniture and every other description of manufacture.

It necessitates a very large outlay in plant and a correspondingly large outlay in materials. Under the most favorable circumstances of profit the State of California assumes the position of a personal competitor in the industries which properly belong to the people themselves, and any errors of judgment or mistakes in management are peculiarly exasperating to private parties engaged in the same lines, and condemn the administration to violent and unjust criticism. There is also a financial difficulty to which this system is always open, and which has occurred in the past few years and is likely to occur at any time without notice. Our biennial appropriations are calculated upon the income and expenditure of each preceding two years. Two years of very profitable operations have been, and probably always would be, a very sufficient warrant for assuming a succession of another two years equally profitable, and the appropriations for the two years succeeding the session of the Legislature, would be very small. In an institution whose necessary and legitimate expenses will run from \$12,000 to \$15,000 per month for supplies alone, and a payroll from \$7,000 to \$8,000 per month, where the earnings from the manufacturing departments will represent say one third of the total income, it will readily appear that any great shrinkage in the income from the manufacturing departments will be exceedingly embarrassing to the administration, and leave but one resource from which to draw the funds necessary for the maintenance of the prison, *i. e.*, by selling the manufactured goods and not replacing the raw materials until the Legislature again convenes and makes provision to replace the exhausted stocks. The urgent need of funds forces the administration to realize upon its manufactured articles, and it will frequently occur that further depression of the market will result from these forced sales. The system pursued by order of your honorable body in accepting terms from private parties to keep up the supply of lumber and materials, and for the State to manufacture the goods at a stipulated price per piece, has enabled us to conduct this department with reasonable success. Railroad freights from the East on manufactured furniture have been largely reduced, and eastern manufacturers have taken advantage of same to overload our market from their large surplus stocks, at exceedingly low rates, yet we are able to show earnings for the fiscal year from this department, employing about ninety men, amounting to $\$12,946\frac{42}{100}$, and have paid from this, as per diem to prisoners, $\$3,149\frac{75}{100}$.

The Harness and Tannery Departments have been combined in one account, and are both operated by private parties, supplying all the raw materials and plant except the vats, and the State furnishing only the power and prison labor. We hope, as soon as the general markets revive to some extent, to be able to build a number more vats, and largely increase our output of leather, and the income from this department. Just at the present the condition of the market will not justify private individuals engaging any more largely, and we need not incur any greater expense for the moment. The earnings for the Harness Department for the fiscal year amount to $\$4,073\frac{77}{100}$, and we have paid $\$733\frac{33}{100}$ per diem. The Tannery Department has earned $\$1,599\frac{57}{100}$, and we have paid $\$492\frac{80}{100}$ per diem.

The Brick Department, which is only operated in the Summer time, is wholly upon State account, and the clay-lands are the State's property. To make the necessary permanent improvements, and constant repairs and alterations necessitated in so large an institution, the conduct of this department is a great economy to the State. The improvements already made present a very favorable showing, and upon the completion of those in contemplation by your honorable body, and already in progress, this institution will compare favorably with the most perfect in the world.

This department shows earnings to the amount of $\$5,435\frac{88}{100}$ for the fiscal year, and we have paid $\$971\frac{10}{100}$ per diem.

Recapitulating the earnings and per diem, the account will stand as follows, as to the manufacturing departments:

Jute Dept. earnings	$\$6,402\frac{60}{100}$;	per diem paid, $\$5,737\frac{38}{100}$,	or 86 per cent of earnings.
Door Dept. earnings	$37,144\frac{14}{100}$;	per diem paid, $5,770\frac{80}{100}$,	or $15\frac{1}{2}$ per cent of earnings.
Furniture Dept. earnings	$12,946\frac{42}{100}$;	per diem paid, $3,149\frac{76}{100}$,	or 24 per cent of earnings.
Harness Dept. earnings	$4,073\frac{77}{100}$;	per diem paid, $733\frac{33}{100}$,	or $15\frac{1}{2}$ per cent of earnings.
Tannery Dept. earnings	$1,599\frac{57}{100}$;	per diem paid, $492\frac{80}{100}$,	or 30 per cent of earnings.
Brick Dept. earnings	$5,435\frac{88}{100}$;	per diem paid, $971\frac{10}{100}$,	or $17\frac{3}{4}$ per cent of earnings.

Or a total of $\$76,602\frac{38}{100}$ earnings, and $\$16,855\frac{17}{100}$ per diem paid to prisoners employed directly in the manufacturing departments.

In addition to this, per diem has been paid to prisoners employed in the Engineer's Department amounting to $\$517\frac{60}{100}$; in the Foundry Department amounting to $\$299\frac{95}{100}$; and in the Turnkey's Department amounting to $\$36\frac{05}{100}$, a total of $\$853\frac{60}{100}$, which if added to the per diem of the manufacturing departments, would make a total of $\$17,709\frac{24}{100}$, or over 26 per cent of the total earnings.

The matter of the relative amounts of the per diem and the earnings is given in detail, that the whole subject-matter may have your careful consideration.

In permanent improvements—building a brick two-story dwelling, occupied by our Resident Physician—extensive additions to the female department, also two stories high, remodeling the old portion of same, and fitting up barber shops and bathroom on the ground floor, making work-rooms for the female prisoners, building sidewalk and fence along the front avenue, rebuilding sewers, etc., we have expended from our cash earnings \$6,962$\frac{05}{100}$. In addition to this we have utilized the labor of prisoners in bricklaying, carpentry, lathing, plastering, plumbing, painting, glazing, etc., in the construction of our permanent improvements to the extent of 3,994 days' labor. Estimating the value of this labor to the State at only fifty cents per day, or \$1,997, and adding to the cash outlay, would make the amount \$8,959 $\frac{05}{100}$, which is an exceedingly low estimate for the value of the improvements which are absolutely permanent.

The construction and occupation of the new female department, as directed by your honorable body, has resulted in a most beneficial change in the unfortunate occupants. Almost constant occupation can now be given them in such duties as are suitable for women, greatly benefiting their health and rendering them wholly amenable to the rules and regulations prescribed for their observance. All the clothing for the use of the prison, after being cut, is sewn and finished by the women. This occupies about two thirds of their time. We have been able to secure some little work from the outside to help occupy their time, but not enough as yet.

Of the projected improvements which have been under consideration by your honorable body, the new hospital is in process of construction, and will be pushed vigorously to its completion. As soon as ready for occupancy the projected alterations in the old hospital will be made, and its conversion into an asylum for the criminal insane will be rapidly made, and the insane criminals removed at once to more healthful quarters.

I beg to call your attention again to the unsafe condition of both the front and rear gate buildings, that the Legislature may be urged to make the much needed appropriation for rebuilding both. It does not seem possible that we can save from our earnings enough to do either work, after we shall have completed the hospital and insane quarters.

In the matter of our sewerage system, I beg to repeat the urgency of some means being adopted to dispose of the sewage matter more effectually, and provide for the exclusion of noxious sewer gases within the walls by means of traps and flues. Appropriations were asked from the last Legislature for the above, but they were not made. A continued disregard of this urgent matter will be very disastrous in event of any epidemic disease developing here, and may be the primary cause for such development.

As a matter of great economy to the State and to increase the security of the prison, I again recommend the extension of the north wall westerly to the line of the brick-kilns, and the building of a new west wall to inclose all the space north of the jute factory, blacksmith shops, and foundry. This will enable us to make a complete segregation of the youthful criminal element, from the older and more vicious classes, which it is impossible to do at present with the limited space within the walls, and will afford means and opportunity for a practical reformatory effort to be made as regards this youthful element now in daily contact with the worst elements of the prison, notwithstanding our every effort to the contrary.

There is needed a guard post on the Salt Water Reservoir Hill to overlook the main yards, and another at Slaughter House Point to command the valley, brickyards, and steamboat landing. I would therefore recommend an appropriation by the next Legislature for the construction of these two posts, and mounting them with machine guns.

I beg to hand you herewith the tabulated reports of the Clerk and Turnkey, and the reports of the Resident Physician and the Chaplain, from which all the details of their respective departments can be seen.

I have pleasure in reporting a cordial sympathy and spirit of coöperation existing among all the officers and employés, and a cheerful disposition on the part of nearly all the prisoners under my charge, to conform to the rules and regulations established by your honorable body.

In conclusion, I beg to return my thanks for the courtesy and consideration at all times shown me by your honorable body.

Respectfully,

PAUL SHIRLEY,
Warden.

REPORT OF THE CLERK

OF THE

State Prison at San Quentin, California.

CLERK'S REPORT.

San Quentin, September 1, 1885.

Hon. Paul Shirley, Warden, California State Prison, San Quentin:

Dear Sir: I beg to hand you herewith tabulated statements showing the financial transactions of this prison during the thirty-sixth fiscal year, ending June 30, 1885.

Very respectfully,

GILES G. CRANDALL,
Clerk.

TABLE No. 1.

Cash Receipts of the State Prison at San Quentin, during the Thirty-sixth Fiscal Year, ending June 30, 1885.

DATE.	Crocker Loan.	State Treasury—General Appropriations.	State Treasury—Jute Revolving Fund.	State Treasury—Deficiency Appropriation for 33d Fiscal Year.	United States.	Brick Department.	Door Department.	Foundry Department.	Furniture Department.	Harness Department.	Jute Department.
1884—July	$1,536 04						$4,796 98	$11 98	$1,391 80	$533 34	$3,880 41
August							5,008 19	19 16	1,458 75	431 99	1,322 59
September		$13,727 62			$548 00	$66 00	4,557 26	15 00	1,374 35	408 46	1,492 59
October		25,985 88				2,563 58	4,414 91	34 32	919 89	374 83	16,119 93
November		19,608 87			415 50	1,501 65	4,879 88	12 03	1,119 26	260 92	777 97
December		678 23				1,296 85	3,547 41	9 21	1,227 14	356 37	7,381 26
1885—January						1,096 55	3,844 45	8 97	1,099 29	473 34	1,819 59
February		*4 23			477 00		4,053 26	9 74	1,437 48	335 20	3,615 64
March							3,644 13	26 81	1,151 63	332 49	7,222 34
April		46,234 18	$7,470 00	$7,000 00	664 84	46 58	4,297 54	23 58	1,202 40	399 77	2,862 89
May		11,366 55	26,560 00			34 02	4,230 90	11 67	1,195 55	379 28	3,595 85
June		11,688 07	5,970 00				4,593 45	21 56	1,134 63	322 19	9,211 40
Totals	$1,536 04	$129,293 03	$40,000 00	$7,000 00	$2,105 34	$6,605 23	$51,868 36	$204 03	$14,712 17	$4,608 18	$59,302 46

DATE.	Tannery Department.	Commissary Department.	Hospital Department.	Stock Department.	Turnkey's Department.	Captain of Yard's Department.	Prison Labor Account.	Library—Donations by Visitors.	Board and Rent Account.	Miscellaneous Accounts.	Total.
Balance on hand June 30, 1884											$9,903 43
1884—July	$132 64	$2,469 93	$5 50	$146 75	$171 55	$31 50	$51 50	$15 50	$134 50		15,309 92
August	219 26	2,549 55	16 45	160 20	166 45	34 15	117 87	36 50	129 50		11,670 61
September	177 76	2,517 19	12 95	164 45	139 30	29 30	101 50	31 50	132 50	$105 92	25,601 05
October	189 78	2,262 33	19 30	1,164 53	157 40	44 30	142 25	30 00	130 50		54,553 73
November	232 37	2,166 69	16 00	215 70	138 90	33 20	109 75	15 50	137 00		31,641 19
December	176 20	2,503 79	20 25	261 15	132 70	7 75	184 00	30 50	151 00		17,963 81
1885—January	167 14	2,242 67	13 30	411 90	99 83	24 10	128 00	15 00	183 25	657 16	12,284 54
February	196 94	2,056 93	16 10	214 12	129 65	9 55	109 00	16 50	142 70	22 26	12,846 30
March	95 70	2,264 30	16 00	264 50	110 65	8 10	91 00	36 00	131 25	17 85	15,412 75
April	180 05	2,184 58	15 25	132 50	108 30	30 45	41 75	32 00	124 50	16 24	73,067 40
May	182 85	2,128 27	14 20	212 10	134 50	37 50	80 75	8 50	124 00	90 95	50,387 44
June	65 40	2,132 79	10 15	196 75	656 80	29 10	88 75	21 50	134 00	11 40	36,287 94
Totals	$2,016 09	$27,479 02	$175 45	$3,544 65	$2,146 03	$319 00	$1,246 12	$289 00	$1,654 70	$921 78	$366,930 11

* Balance "State Prison Building Fund."

TABLE No. 2.

Cash Disbursements of the State Prison at San Quentin, during the Thirty-sixth Fiscal Year, ending June 30, 1885.

DATE.	Merchandise.	Material.	Salaries.	Wages of Department Employés.	Allowance to Officers in lieu of Board.	Prisoners' Earnings.	Gratuities to Discharged Prisoners.	Transportation of Prisoners.	Escaped Prisoners.	Allowance to United States Prisoners.
1884—July	$8,895 86	$2,754 04	$5,013 30	$2,331 45	$290 40	$29 70	$140 00	$20 45	$23 50	
August	116 65	78 07	5,104 90	2,362 62	290 40	3,306 65	80 00	31 65	15 00	
September	10,557 73	2,685 04	5,117 00	2,275 13	290 40	1,767 14	110 00	46 40		$24 00
October	20,564 18	22,094 21	5,161 70	1,882 24	290 40	1,359 50	110 00	65 30		
November	10,179 85	8,686 67	5,100 00	1,919 91	290 40	1,184 02	90 00	72 40		
December	9,741 38	2,709 42	5,120 05	2,150 13	290 40	1,315 19	185 00	137 55		28 00
1885—January	169 38	446 80	4,937 35	2,269 00	290 40	24 97	125 00	46 90	234 00	
February	229 79	3,643 74	4,968 35	2,283 00	268 70	1,548 03	90 00	39 10		
March	189 99	4,525 03	4,953 39	2,191 75	268 70	1,524 82	115 00	26 00		55 34
April	37,990 52	12,380 78	5,118 30	2,277 75	268 70	1,438 76	125 00	54 55		
May	10,428 24	28,049 90	5,105 30	2,182 25	268 70	1,330 24	100 00	60 30		
June	11,416 24	12,607 71	4,860 00	2,000 80	290 40	1,558 65	145 00	80 75	50 00	63 95
Totals	$120,479 71	$100,661 41	$60,589 55	$26,126 03	$3,398 00	$16,387 67	$1,315 00	$681 35	$322 50	$171 29

DATE.	Permanent Improvements.	Gas.	Water.	Advertising.	Expense of State Prison Directors.	General Expense.	Miscellaneous.	Bank of California Debt of 1882.	Totals.
1884—July		$149 40	$1,000 00	$181 85	$121 05	$117 45			$21,098 45
August					90 85	54 65			11,531 34
September		125 40	1,000 00		140 20	415 25			24,553 69
October	$312 72	325 76	2,000 00		138 30	110 70	$389 44		54,804 45
November	196 97	230 91	1,000 00		133 20	132 30			29,216 63
December	158 70	248 60	1,000 00	30 00		191 60			23,206 02
1885—January	108 10			216 00	124 90	139 50			9,132 30
February	117 34				55 00	71 77			13,314 82
March	88 02			41 70	306 20	180 65	163 34		14,629 84
April	362 06	980 19	4,000 00		256 95	292 55		$7,112 68	72,658 79
May	840 64	181 32	1,000 00		106 90	131 25			49,785 04
June	651 05	158 70	1,000 00	257 60	358 75	184 36	132 80		35,816 76
Totals	$2,835 60	$2,400 28	$12,000 00	$727 15	$1,832 30	$2,022 03	$685 58	$7,112 68	$359,748 13
Balance on hand June 30, 1885									7,181 98
									$366,930 11

TABLE No. 3.

Exhibit of the Cost of Maintaining Prisoners for the Thirty-sixth Fiscal Year, ending June 30, 1885.

MONTH.	Salary.	Subsistence.	Beds and Bedding.	Clothing.	Forage.	Fuel.	Gas and Water.	Medicine.	Postage and Stationery.
1884—July	$4,729 90	$5,457 80	$57 23	$790 73	$71 98	$226 14	$1,125 40	$104 56	$49 03
August	4,742 00	5,516 24	29 41	696 90	119 26	220 30	1,139 80	117 76	51 82
September	4,786 70	5,410 55	58 67	633 05	145 16	243 91	1,185 96	78 12	87 85
October	4,725 00	5,581 05	45 59	855 40	141 55	304 01	1,230 91	86 45	66 60
November	4,745 05	5,359 48	119 24	576 03	66 83	275 41	1,248 60	123 26	72 04
December	4,562 35	5,643 79	380 78	331 60	53 15	588 53	1,274 41	117 42	50 20
1885—January	4,593 35	5,474 56	307 34	336 51	----------	490 82	786 52	120 15	59 80
February	4,578 30	5,012 20	218 70	615 57	123 17	307 38	1,224 24	95 86	36 54
March	4,743 30	5,286 72	221 19	851 44	46 32	276 17	1,214 96	77 31	48 73
April	4,730 30	5,429 55	41 29	708 02	68 21	268 50	1,181 32	161 40	51 29
May	4,485 00	5,510 26	230 91	418 86	----------	302 45	1,158 70	109 01	42 65
June	4,275 00	5,445 61	131 50	632 75	40 02	269 93	1,126 90	154 00	59 49
Totals	$55,696 25	$65,127 81	$1,841 85	$7,446 86	$875 65	$3,773 55	$13,897 72	$1,345 30	$676 04

MONTH.	Shoes.	Miscellaneous.	Total Cost per Month.	Average No. of Prisoners.	Cost per Capita per Day.	AVERAGE COST PER HEAD.		
							Per Month.	Per Day.
1884—July	$401 09	$241 02	$13,254 88	1,153	$0 37			
August	355 30	252 80	13,241 59	1,147.58	0 37.2	Salary	$3 94	$0 12.9
September	318 49	241 48	13,189 94	1,148.86	0 38.3	Subsistence	4 61	0 15.1
October	350 39	205 32	13,592 27	1,150.8	0 38	Beds and bedding	0 13	0 0.4
November	368 65	261 67	13,216 26	1,157.1	0 38.1	Clothing	0 53	0 1.7
December	259 38	282 20	13,543 81	1,169.45	0 37.3	Forage	0 06	0 0.2
1885—January	338 36	94 93	12,602 34	1,188.94	0 34.2	Fuel	0 27	0 0.9
February	291 48	263 44	12,766 88	1,193	0 38.2	Gas and water	0 98	0 3.3
March	238 99	173 37	13,178 50	1,201.74	0 35.4	Medicine	0 09½	0 0.3
April	280 59	228 83	13,149 30	1,205	0 36.4	Postage and stationery	0 05	0 0.2
May	344 12	30 37	12,632 33	1,209.61	0 33.7	Shoes	0 27	0 0.9
June	363 44	251 11	12,749 75	1,211.23	0 35	Miscellaneous	0 18	0 0.6
Totals	$3,910 28	$2,526 54	$157,117 85	1,178.02	$0 36.5	Totals	$11 11½	$0 36.5

TABLE No. 4.

CALIFORNIA STATE PRISON, SAN QUENTIN.

Assets.		
Buildings, gas and water mains	$431,888 55	
Real estate	38,000 00	
Reservoirs	31,278 55	
Engines and machinery	35,250 00	
Jute factory and equipment	245,389 76	
Belt department	384 35	
Brick department	4,504 00	
Engineer's department	380 00	
Foundry department	6,394 96	
Furniture department	41,615 46	
Jute department	64,958 10	
Tannery department	1,044 50	
Commissary department	3,257 01	
Captain of the Guard's department	7,119 25	
Hospital department	850 78	
Stock department	7,676 35	
Captain of the Yard and Turnkey's department	15,213 16	
Prison library	795 35	
Clerk's office	454 00	
Warden's office	494 00	
Warden's house	3,425 50	
		$940,373 63
Due from the United States	$731 45	
Due from sundry debtors	13,451 74	
Cash	7,181 98	
		21,365 17
Total assets, June 30, 1885		$961,738 80
Liabilities.		
Unpaid bills, merchandise, material, etc.	$18,265 18	
Unpaid salaries, officers and guards	4,952 00	
Unpaid wages, department employés	3,199 00	
Unpaid earnings of prisoners	2,861 45	
Total liabilities, June 30, 1885		29,277 63
Excess of assets		$932,461 17

TABLE No. 5.

Summary for the Fiscal Year, ending June 30, 1885.

Earnings Thirty-sixth Fiscal Year.		
Belt department	$29 60	
Brick department	4,464 78	
Door department	31,373 34	
Foundry department	2,001 18	
Furniture department	9,796 67	
Harness department	3,340 44	
Jute department	665 22	
Tannery department	1,106 77	
Total	$52,778 00	
Deduct expense of Engineer's department	1,569 75	
Net earnings of manufacturing departments		$51,208 25
Commissary department	$1,976 34	
Stock department	2,251 76	
Prison library	134 42	
Support of United States prisoners	2,097 50	
Prison labor	1,318 62	
		7,778 64
Total earnings		$58,986 89
Increased Value of Assets since June 30, 1884.		
Buildings, permanent improvements		$6,962 05
Jute factory (machinery)		3,440 00
Belt department		69 60
Brick department		4,314 00
Engineer's department		2 00
Foundry department		2,600 96
Jute department		28,195 86
Commissary department		399 12
Hospital department		53 56
Stock department		1,824 60
Captain of Yard and Turnkey's department		1,538 42
Library		14 60
Clerk's office		292 10
Warden's house		725 50
Total		$50,432 37
Deduct decrease tannery department	$1,428 50	
Deduct decrease Captain of Guard's department	430 75	
Deduct decrease Warden's office	16 50	
		1,875 75
Net increase in values for the year		$48,556 62

TABLE No. 6.

Abstract of Expenses for Thirty-sixth Fiscal Year.

Advertising account		$481 65
Interest and discount account		1,482 21
Captain of the Guard's department		2,215 12
Hospital department		2,627 18
Captain of Yard and Turnkey's department		17,102 44
Guards' mess	$9,013 79	62,736 49
Officers' mess	2,764 12	
Prison mess	41,367 83	
Captain of Yard's mess	2,962 96	
Warden's house	3,885 29	
Allowances in lieu of board	2,742 50	
Salaries		60,589 55
General expense		1,376 98
State Prison Directors' expense		1,778 75
General repairs		3,130 65
Warden's office	$286 93	485 28
Clerk's office	198 35	
Gas		2,377 78
Water		11,519 94
Discharged prisoners (gratuities)	$1,315 00	2,318 85
Transportation of prisoners	681 35	
Escaped prisoners	322 50	
Total expenses for the year		$170,222 87

NOTE 1.—Taking the entire expense of running the prison for the year, the cost of maintaining prisoners would be $14,185 24 per month, $12 04 per head per month, or = 39½ cents per day, for 1,178 prisoners (the average number).

NOTE 2.—Total amount of expense account	$170,222 87
Deduct earnings of departments	58,986 89
Which leaves the net expense for the year	$111,235 98

Making the cost per capita $7 87 per month, or 25½ cents per day.

REPORT OF THE TURNKEY

OF THE

State Prison at San Quentin, California.

TABLE No. 1

Prison Account from 1851 to July 1, 1885

Years	Prisoners Received by Order of Court	Paroles Revoked	Escapes Recaptured	Returned from Insane Asylum	Returned Convict Witnesses	Returned with [illegible] granted a New Trial	United States Prisoners Received	Returned with Additional Sentence on a New Charge	Returned, Writ of Habeas Corpus having been denied	Returned by Order of the Court on Writ of Habeas Corpus	Returned from Trial on a New Charge [illegible]	Returned from Trial on New Charge [illegible]	Received by Transfer from Folsom Prison	Total Received	Discharged per Act and Restored	Discharged per Act	Pardoned by the Governor	Pardoned by the President	Discharged by Expiration of Sentence	Discharged by Commutation of Sentence	Discharged by Order of Court	Escaped	Discharged by Secretary of War	Discharged by Secretary of Navy	Discharged by [illegible]	Discharged by Prison Directors	Died and Executed	Sent to Insane Asylum	Restored to [illegible]	Taken out as Convict Witnesses	Discharged by Order of United States Government	Taken out for a New Trial	Removed to Folsom Prison by Order of the State Board of Prison Directors*	Suicide	Taken out for Trial on a New Charge	Taken out for Trial on Charge of Murder	Taken out on a Writ of [illegible]	Taken out on a Writ of Habeas Corpus	By Executive Release	Taken out for Trial on Additional Charge	Taken out on Certificate of Probable Cause	Total Discharged
1851	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1852	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1853	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1854	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1855	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1856	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1857	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1858	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1859	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1860	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1861	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1862	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1863	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1864	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1865	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1866	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1867	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1868	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1869	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1870	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1871	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1872	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1873	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1874	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1875	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1876	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1877	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1878	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1879	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1880	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1881	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1882	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1883	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1884	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1885	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Totals	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Note.—[illegible] discharge [illegible] Folsom [illegible]

TABLE No. 1.

Prison Account from 1851 to July 1, 1884.

Total Received	Discharged per Act and Restored	Discharged per Act	Pardoned by the Governor	Pardoned by the President	Discharged by Expiration of Sentence	Discharged by Commutation of Sentence	Discharged by order of Court	Escaped	Discharged by Secretary of War	Discharged by Secretary of Navy	Discharged by General Schofield	Discharged by Prison Directors	Died and Killed	Sent to Insane Asylum	Restored to Citizenship by the Governor
35								1							
108			2		12			6					1		
165			9		38			8					3		
227			14		87			87					6		
291			29		94		4	28					1		1
287			18		103		1	65					5		4
277			28		114		4	72					14	2	
259			27		94		7	23					5	3	32
270			38		119		13	95					17	1	16
315			25		145		7	127					7	2	1
247			34		130		4	35					8	1	
264			11		153		5	90					15	8	4
167			24		134			24					4	7	
234	43	55	11		66		3						17	1	
236	7	134	11		3		10	1					8	3	
258	25	126	23	8	3		8	4	3	3			8	1	
287	41	171	37		4		11			6			16	3	
285	40	194	44		3		7	5		1			9		
333	110	92	22		3		7						10	4	
376	155	93	32	1	5		14	1	1				10	13	
378	185	56	37		3	1	16	2					16		
397	160	97	61	1	2	2	15	2					12	9	
208	82	57	15	1	1	1	20	2					8	3	
413	185	117	23	2			27			2	1	1	11	5	
546	214	119	32				35	6		1			18		
518	244	96	66			10	42	3		1			15	4	
620	164	129	30	2		35	37	10		2			16	2	
715	214	163	16	1		62	58	2					27	3	
604	264	124	17	2		53	20	10					29	8	
555	324	172	19	2		20	1	7					28	2	
557	336	168	7	3		14	1	7					22	1	
510	231	171	20	2			2	1					12	5	
440	232	132	45				1	1					13		
437	195	136	32	1	1		1	4					14	3	
11,819	3,452	2,602	862	26	1,317	198	381	729	4	16	1	1	405	94	58

Taken out as Convict Witnesses	Discharged by order of United States Commissioner	Taken out for a New Trial	Removed to Folsom Prison by order of the State Board of Prison Directors	Suicide	Taken out for Trial on a New Charge	Taken out for Trial on a Charge of Murder	Taken out on a Writ of Probable Cause	Taken out on a Writ of Habeas Corpus	By Executive Release	Taken out for Trial on an Additional Charge	Total Discharged
----	------	------	------	------	------	------	------	------	------	------	1
----	------	------	------	------	------	------	------	------	------	------	21
----	------	------	------	------	------	------	------	------	------	------	58
----	------	------	------	------	------	------	------	------	------	------	194
----	------	------	------	------	------	------	------	------	------	------	157
----	------	------	------	------	------	------	------	------	------	------	196
----	------	------	------	------	------	------	------	------	------	------	234
----	------	------	------	------	------	------	------	------	------	------	191
----	------	------	------	------	------	------	------	------	------	------	299
----	------	------	------	------	------	------	------	------	------	------	314
----	------	------	------	------	------	------	------	------	------	------	212
----	------	------	------	------	------	------	------	------	------	------	286
----	------	------	------	------	------	------	------	------	------	------	193
----	------	------	------	------	------	------	------	------	------	------	196
----	------	------	------	------	------	------	------	------	------	------	177
----	------	------	------	------	------	------	------	------	------	------	212
----	------	------	------	------	------	------	------	------	------	------	289
----	------	------	------	------	------	------	------	------	------	------	303
----	------	------	------	------	------	------	------	------	------	------	248
----	------	------	------	------	------	------	------	------	------	------	325
----	------	------	------	------	------	------	------	------	------	------	316
----	------	------	------	------	------	------	------	------	------	------	361
----	------	------	------	------	------	------	------	------	------	------	190
----	------	------	------	------	------	------	------	------	------	------	377
----	------	------	------	------	------	------	------	------	------	------	425
----	------	------	------	------	------	------	------	------	------	------	481
----	------	------	------	------	------	------	------	------	------	------	427
---	------	------	------	------	------	------	------	------	------	------	546
----	------	------	------	------	------	------	------	------	------	------	527
14	1	14	------	------	------	------	------	------	------	------	604
20	------	10	253	1	2	1	2	3	1	------	852
8	------	8	60	2	1	------	1	-----	-----	1	525
22	2	7	------	------	4	------	------	-----	------	------	459
11	1	8	50	------	4	1	1	3	1	------	468
75	4	47	363	3	11	2	4	6	2	1	10,664

TURNKEY'S REPORT

San Quentin, Marin County, California, July 1, 1885.

Hon. Paul Shirley, Warden California State Prison, San Quentin, California:

Dear Sir: I herewith submit the annual report of the Turnkey's department, in tabular form, for the fiscal year ending June 30, 1885.

Table No. 10 shows the amounts returned from the various departments assigned me to the Clerk for collection, amounting to $4,302 71, which includes $542 45 returned to your office as a charge against other departments of the prison.

On June 1, 1885, the offices of Captain of the Yard and Turnkey were consolidated.

There has been no record kept in the office of the Captain of the Yard, from which a report could be made, in conformity with your order of December 5, 1883.

Table No. 11 shows the assignment of convicts to the various departments at the close of the fiscal year.

Respectfully,

CHARLES AULL,
Captain of the Yard and Turnkey.

TABLE No. 2.

Recapitulation of Received and Discharged Prisoners, from July 1, 1884, to July 1, 1885.

Months.	By Commitment	Returned Convict Witnesses	Escapes Recaptured	Returned from Trial on a New Charge, with an Additional Sentence	United States Prisoners Received	Returned for Non-compliance with the Conditions of Pardon	Received by Transfer from Folsom Prison	Total Received	Prisoners on Hand at the Close of each Month. Months.	Prisoners on Hand at the Close of each Month. Number
1884—July	24							24	1884—July	1,146
August	23		1					24	August	1,142
September	49	1		1				51	September	1,155
October	34				3	1		38	October	1,154
November	30	1			1		1	33	November	1,157
December	52				1			53	December	1,184
1885—January	39	1	1		1		1	43	1885—January	1,194
February	32				1			33	February	1,196
March	37	1			1			39	March	1,203
April	35				1		1	37	April	1,208
May	29	1			2			32	May	1,214
June	40							40	June	1,212
Totals	424	5	2	1	11	1	3	447	Monthly average	1,180$\frac{5}{12}$

TABLE NO. 2—Continued.

MONTHS.	Discharged per Act and Restored	Discharged per Act	Pardoned by the Governor	Pardoned by the President	Discharged by Order of U. S. Commissioner	Taken out by Order of Court as Witnesses	Taken out by Order of Court for a New Trial	Taken out for Trial on a New Charge	Taken to Insane Asylum	Died	Escaped	Discharged by Order of Court	Removed to Folsom Prison by Order of the State Board of Prison Directors	Taken out on a Writ of Probable Cause	Taken out on a Certificate of Probable Cause	Total Discharged
1884—July	20	8	5													33
August	10	4	8				1		4		1					28
September	19	6	6			1	2	1	2	1						38
October	16	11	4		1		3		1		1		1	1		39
November	16	6	2			1			1	3					1	30
December	12	8					1			3	1	1				26
1885—January	19	7	3			1			1	2						33
February	14	4	7			1				3			1	1		31
March	18	5	6	1					1	1						32
April	12	12	7							1						32
May	14	9				1			1	1						26
June	20	16	4				1								1	42
Totals	190	96	52	1	1	5	8	1	11	15	3	1	2	2	2	390

Table No. 2—Continued.

Recapitulation of Received and Discharged Prisoners, from July 1, 1884, to July 1, 1885.

Number of prisoners on hand June 30, 1884		1,155
Received from July 1, 1884, to July 1, 1885		447
		1,602
Discharged per Act and restored	190	
Discharged per Act	96	
Pardoned by the Governor	52	
Pardoned by the President	1	
Discharged by order of U. S. Commissioner	1	
Taken out by order of Court as witnesses	5	
Taken out by order of Court for a new trial	8	
Taken out for trial on a new charge	1	
Taken to Insane Asylum	11	
Died	15	
Escaped	3	
Discharged by order of Court	1	
Removed to Folsom Prison by order of the State Board of Prison Directors	2	
Taken out on a writ of probable cause	2	
Taken out on a certificate of probable cause	2	
		390
Number of prisoners on hand June 30, 1885		1,212
Increase for the fiscal year		57

TABLE No. 3.

Nativity of Prisoners.

NATIVITY.	Number.	Per Cent.	NATIVITY.	Number.	Per Cent.
United States and Territories.			*Foreign.*		
Alabama	4	.32	Austria	9	.74
Arkansas	5	.40	Australia	10	.82
Arizona Territory	1	.08	Belgium	2	.16
California	246	20.40	China	165	13.70
Connecticut	2	.16	Canada	40	3.31
Georgia	1	.08	Chili	7	.56
Illinois	22	1.81	Denmark	3	.24
Indiana	10	.82	England	50	4.14
Iowa	6	.48	France	12	.99
Kansas	3	.24	Finland	2	.16
Kentucky	10	.82	Germany	55	4.55
Louisiana	6	.48	Ireland	83	6.88
Maine	10	.82	Italy	8	.64
Maryland	4	.32	Mexico	72	5.97
Michigan	8	.64	Nova Scotia	7	.56
Massachusetts	38	3.14	New Brunswick	4	.32
Missouri	40	3.31	Peru	2	.16
Minnesota	1	.08	Portugal	5	.40
New Hampshire	1	.08	Russia	2	.16
New York	130	10.78	Spain	3	.24
New Jersey	4	.32	Sweden and Norway	14	1.16
North Carolina	2	.16	Switzerland	6	.48
Nebraska	1	.08	Scotland	17	1.41
Ohio	19	1.56	Sandwich Islands	1	.08
Oregon	5	.40	Wales	3	.24
Pennsylvania	26	2.15	West Indies	2	.16
Rhode Island	1	.08	At sea	3	.24
South Carolina	1	.08			
Tennessee	2	.16	Totals	587	48.47
Texas	2	.16			
Vermont	2	.16			
Virginia	2	.16	RECAPITULATION.		
West Virginia	1	.08			
Wisconsin	6	.48			
New Mexico	2	.16	United States and Territories	625	51.53
District of Columbia	1	.08	Foreign	587	48.47
Totals	625	51.53	Totals	1,212	100.00

TABLE No. 4.

Classification of Crime.

CRIME.	Number.	CRIME.	Number.
Arson	3	Embezzlement	12
Arson, first degree	4	Forgery	21
Arson, second degree	10	Felony	40
Arson and burglary	2	Grand larceny	165
Attempt to commit arson	2	Grand larceny and prior conviction	16
Attempt to kidnap	3	Grand larceny and ass'lt to murder	1
Attempt at grand larceny	5	Incest	2
Assault to murder	60	Jail breaking	1
Assault to rape	12	Larceny, first degree	1
Assault to rob	35	Murder	20
Assault to rob and grand larceny	3	Murder, first degree	80
Assault to do great bodily injury	7	Murder, second degree	60
Assault with deadly weapon	45	Manslaughter	45
Attempt at burglary	27	Perjury	9
Burglary	35	Petit larceny and prior conviction	40
Burglary, first degree	130	Rape	7
Burglary, second degree	125	Robbery	107
Burglary and grand larceny	10	Robbery and arson	2
Burglary and prior conviction	52	Robbery and assault to murder	1
Bigamy	3	Robbery and assault to rob	1
Buggery	3		
Counterfeiting	5	Total	1,212

TABLE No. 5.

Terms of Imprisonment.

TERM.	Number.	TERM.	Number.
Six months	1	Twelve years	16
One year	52	Thirteen years	14
One and one quarter years	4	Fourteen years	25
One and one half years	20	Fifteen years	55
One and three fourths years	2	Sixteen years	4
Two years	102	Seventeen years	3
Two and one half years	14	Eighteen years	4
Three years	95	Twenty years	28
Three and one half years	10	Twenty-one years	1
Four years	80	Twenty-two years	3
Four and one half years	7	Twenty-four years	2
Five years	198	Twenty-five years	10
Five and one half years	7	Twenty-eight years	3
Six years	52	Thirty years	8
Six and one half years	42	Thirty-five years	3
Seven years	12	Thirty-six years	1
Seven and one half years	53	Forty years	2
Eight years	10	Forty-five years	1
Eight and one half years	6	Fifty years	1
Nine years	10	Life	118
Ten years	125		
Eleven years	8	Total	1,212

TABLE No. 6.

Ages of Prisoners.

AGE.	Number.	AGE.	Number.
Thirteen years	2	Forty-two years	43
Fourteen years	4	Forty-three years	19
Fifteen years	4	Forty-four years	19
Sixteen years	8	Forty-five years	19
Seventeen years	25	Forty-six years	13
Eighteen years	20	Forty-seven years	11
Nineteen years	45	Forty-eight years	10
Twenty years	41	Forty-nine years	10
Twenty-one years	30	Fifty years	8
Twenty-two years	36	Fifty-one years	7
Twenty-three years	49	Fifty-two years	8
Twenty-four years	40	Fifty-three years	6
Twenty-five years	40	Fifty-four years	5
Twenty-six years	40	Fifty-five years	3
Twenty-seven years	32	Fifty-six years	3
Twenty-eight years	33	Fifty-seven years	2
Twenty-nine years	54	Fifty-eight years	4
Thirty years	48	Fifty-nine years	1
Thirty-one years	65	Sixty years	3
Thirty-two years	45	Sixty-one years	1
Thirty-three years	32	Sixty-two years	1
Thirty-four years	35	Sixty-three years	1
Thirty-five years	58	Sixty-four years	1
Thirty-six years	41	Sixty-eight years	1
Thirty-seven years	45	Seventy-three years	1
Thirty-eight years	38	Seventy-six years	1
Thirty-nine years	28		
Forty years	22	Total	1,212
Forty-one years	51		

TABLE No. 6—Continued.

Educational Abilities of Prisoners.

Read and write	824
Read and cannot write	55
Neither read nor write	333
Total	1,212

TABLE No. 7.

Number of Prisoners from each County.

County.	Number.	Per Cent.	County.	Number.	Per Cent.
Alameda	75	6.18	Sacramento	15	1.24
Amador	8	.64	San Benito	7	.56
Butte	25	2.08	San Bernardino	32	2.66
Calaveras	15	1.24	San Diego	28	2.32
Colusa	5	.40	San Francisco	360	29.74
Contra Costa	29	2.40	San Joaquin	60	4.96
Del Norte	7	.56	San Luis Obispo	6	.48
El Dorado	3	.24	San Mateo	10	.82
Fresno	27	2.23	Santa Barbara	14	1.16
Humboldt	10	.82	Santa Clara	57	4.71
Inyo	9	.74	Santa Cruz	10	.82
Kern	25	2.08	Shasta	20	1.66
Lake	8	.64	Sierra	13	1.08
Los Angeles	92	7.69	Siskiyou	7	.56
Marin	9	.74	Solano	13	1.08
Mendocino	10	.82	Sonoma	28	2.32
Mariposa	5	.40	Stanislaus	13	1.08
Merced	15	1.24	Tehama	14	1.16
Mono	3	.24	Tulare	18	1.50
Monterey	19	1.56	Tuolumne	13	1.08
Modoc	2	.16	Ventura	16	1.34
Nevada	11	.91	Yolo	8	.64
Napa	10	.82	Yuba	7	.56
Placer	17	1.41			
Plumas	4	.32	Totals	1,212	100.00

TABLE No. 7—Continued.

Number of Terms.

Prisoners serving their first term	945
Prisoners serving their second term	141
Prisoners serving their third term	67
Prisoners serving their fourth term	28
Prisoners serving their fifth term	11
Prisoners serving their sixth term	19
Prisoners serving their eighth term	1
Total	1,212

TABLE No. 8.

Occupation of Prisoners when Received.

Occupation.	Number.	Occupation.	Number.
Bookbinder	1	Ironer	6
Baker	6	Laborer	414
Brick maker	2	Lithographer	1
Bookkeeper	8	Lawyer	1
Barkeeper	10	Molder	4
Barber	15	Miner	35
Blacksmith	12	Machinist	9
Brush maker	1	Marble polisher	1
Butcher	12	Printer	12
Brick mason	4	Plumber	3
Bootblack	2	Painter	15
Broom maker	2	Physician	1
Boiler maker	1	Peddler	2
Brakesman	3	Puddler	1
Bolt cutter	1	Piano tuner	1
Button maker	1	Porter	1
Cook	90	Railroad employé	6
Carver	3	Roller	1
Calker	1	Ship carpenter	4
Carpenter	28	Sash maker	4
Cigar maker	20	School teacher	1
Clerk	25	Stone mason	1
Cabinet maker	8	Sailor	30
Cooper	3	Servant	1
Chair maker	2	Stonecutter	1
Coach driver	1	Salesman	1
Carriage maker	1	Shoemaker	22
Commercial traveler	1	Sailmaker	2
Cracker baker	1	Soldier	2
Compositor	1	Surveyor	1
Domestic	18	Schoolmaster	1
Dentist	1	Steward	3
Dairyman	4	Stevedore	2
Dyer	1	Sawyer	1
Druggist	2	Spinner	1
Engineer	15	Turner	2
Farmer	65	Teamster	30
Fisherman	4	Tailor	15
Fireman	4	Telegraph operator	3
Furniture polisher	2	Tinsmith	5
Foundryman	3	Tanner	2
Gardener	9	Upholsterer	3
Gasfitter	2	Vaquero	42
Harness maker	12	Violinist	1
Hostler	13	Washman	70
Herder	4	Weaver	2
Horseshoer	2	Wheelwright	1
Hatter	3	Waiter	12
Hunter	1		
Horsebreaker	1	Total	1,212

TABLE No. 9.

Statement of Clothing, etc., issued by Turnkey's Department from July 1, 1884, to July 1, 1885.

Date.	Woolen Pants	Woolen Shirts	Hickory Shirts	White Shirts and Collars	Convict Shoes	Citizen Shoes	Hats	Blankets	Beds	Boots to Order	Shoes to Order	Repairs	Flour Sacks	Brooms	Women's Shoes	Yards of Women's Dress Goods and Trimmings	Yards of Muslin	Sheets
1884—July	326	302	12	1	218	40	142	22	47	1	11	40	224	80	13	36		20
August	168	154	22	6	119	29	83	22	58	2	8	49	196	79		48	60	2
September	254	224	19	4	146	31	113	55	70	3	13	41	202	82		48	60	2
October	226	204	23	2	141	41	91	48	75	4		35	196	74		36	54	4
November	170	162	17	2	105	26	68	50	59	5	3	16	158	80		48	60	
December	141	131	11	2	79	35	33	95	101	6	6	47	144	73			6	
1885—January	203	215	9	1	143	27	89	74	73	4	8	34	154	79				
February	218	199	13		113	30	72	48	63	1	7	35	208	71		12	33	6
March	252	235	22	1	154	35	106	43	95	1	2	29	160	82	16			
April	209	189	27	1	136	38	87	53	97	1	8	25	180	73		96	120	
May	152	139	19		163	30	70	39	64	3	13	31	164	85		48	75	4
June	216	197	16		163	32	134	47	89	4	6	47	194	71		24	30	6
Totals	2,535	2,351	210	20	1,620	394	1,088	596	891	35	85	429	2,180	929	29	396	498	44

Date.	Pillow Cases	Yards of Flannel	Knives, Forks, and Spoons	Plates, Cups, and Saucers	Ladies' Hose—Pairs	Towels	Jumpers	Undershirts	Drawers	Socks	Linen Handkerchiefs	Ladies' Collars	Veils	Ladies' Gloves	Yards of Linen	Yards of White Ducking	Issued to Prisoners upon their Discharge from the Prison.		
																	Coats.	Vests.	Pants.
1884—July	2	6	1	1	6		1			2	6	6	1	1			20	18	14
August	1	45	1	1						2							16	10	12
September	3	70	1	1			1			4							16	14	18
October	1	52	1	1			2								3		18	16	20
November		70			36					2							12	10	9
December		24								4							14	6	12
1885—January		28															17	11	15
February	4		1	1		6		10	10	25						20	12	9	8
March	4		2	2				42	42	6							12	13	10
April		80			16			37	37	23							20	11	15
May	4	50	2	2	16			40	35	41							15	10	8
June	4	20			4		8	48	46	51							18	11	17
Totals	23	445	9	9	78	6	12	177	170	160	6	6	1	1	3	20	190	139	158

TABLE No. 10.

Amount charged Employés and Departments for Work done and Material furnished, and returned to Clerk for collection and proper entry.

DATE.	State Mess.	State Laundry.	State Shoe Shop.	State Tailor Shop.	State Upholsterer.	State Tin Shop.	State Blacksmith Shop.	State Wheelwright Shop.	Wood Account.	State Bakery.	Total.
1884—July	$75 00	$161 65	$30 20	$16 00							$282 85
August	78 00	104 68	35 50	7 50							225 68
September	81 00	110 01	33 30	37 17							261 48
October	89 50	119 84	42 55	12 81	$2 75						267 45
November	103 50	90 00	39 15	21 27	4 25						258 17
December	113 25	91 03	14 50	19 60							238 38
1885—January	92 70	86 25	37 85	25 10	1 25						243 15
February	81 25	86 40	28 15	14 19	4 50						214 49
March	72 00	92 33	33 35	12 88							210 56
April	69 00	104 20	41 75	18 08	8 25						241 28
May	64 00	79 86	19 30	574 98	75						738 89
June	66 00	88 52	48 45	537 22	75	$52 56	$101 02	$63 50	$6 00	$156 31	1,120 33
Totals	$985 20	$1,214 77	$404 05	$1,296 80	$22 50	$52 56	$101 02	$63 50	$6 00	$156 31	$4,302 71

TABLE No. 11.

Showing the number of Convicts assigned to various Departments of the Prison, at the close of the Fiscal Year ending June 30, 1885.

Department.	Number.	Department.	Number.
Jute	330	Shop sweepers	27
Door	196	Officers' and guards' din'g quarters	19
Chair	96	Convict dining room and kitchen	43
Tannery	20	Hospital kitchen	5
Harness	23	Elevators	2
Foundry	12	Wheelwrights	3
Engineer's department	16	Lamplighter	1
Barber shop	10	Locksmith	1
Carpenters	8	Gate tenders	11
Tin shop	4	Door tenders	9
Plumbers	3	Cell and room tenders	24
Painters	4	Flower and vegetable gardens	19
Coopers	1	Inside scavengers	7
Shoemakers	10	Outside scavengers	4
Tailors	14	Bath tank	1
Warden's office	4	Patients in hospital	5
State Clerk	2	Cripples and imbeciles	24
Captain of the Yard's office	4	Hospital nurses	5
Turnkey's office	4	Library	5
Physician's	1	Beltmakers	1
Dentist	1	Upholsterers	3
Stables and teamsters	22	Coalyard	1
Lumbermen	11	Brickyard	12
Captain of the Guard	6	Brickmasons	10
Blacksmiths	5	General laborers	59
House servants	33	Stock and chicken yard	6
Commissary	8	Whitewashers	4
Stonemason	1	Females	18
State laundry	26		
Yard sweepers	8	Total	1,212

TABLE No. 12.

Showing the Operation of the Credit System under Section 1590 of the Penal Code.

Sentence.		Credit.	Term with Credit.			Sentence.		Credit.	Term with Credit.			Sentence.		Credit.	Term with Credit.			Sentence.		Credit.	Term with Credit.		
Years	Months	Months	Years	Months	Days	Years	Months	Months	Years	Months	Days	Years	Months	Months	Years	Months	Days	Years	Months	Months	Years	Months	Days
----	6	1	------	5	------	13	-----	57	8	3	------	25	6	119½	15	6	15	38	----	182	22	10	----
1	-----	2	------	10	------	13	6	59½	8	6	15	26	-----	122	15	10	------	38	6	184½	23	1	15
1	6	3	1	3	------	14	-----	62	8	10	------	26	6	124½	16	1	15	39	----	187	23	5	---
2	-----	4	1	8	------	14	6	64½	9	1	15	27	-----	127	16	5	-----	39	6	189½	23	8	15
2	6	6	2	------	------	15	-----	67	9	5	------	27	6	129½	16	8	15	40	----	192	24	------	----
3	-----	8	2	4	------	15	6	69½	9	8	15	28	-----	132	17	------	------	40	6	194½	24	3	15
3	6	10	2	8	------	16	----	72	10	------	-----	28	6	134½	17	3	15	41	----	197	24	7	----
4	-----	12	3	------	------	16	6	74½	10	3	15	29	-----	137	17	7	------	41	6	199½	24	10	15
4	6	14½	3	3	15	17	----	77	10	7	------	29	6	139½	17	10	15	42	----	202	25	2	----
5	-----	17	3	7	------	17	6	79½	10	10	15	30	-----	142	18	2	------	42	6	204½	25	5	15
5	6	19½	3	10	15	18	-----	82	11	2	------	30	6	144½	18	5	15	43	----	207	25	9	----
6	-----	22	4	2	------	18	6	84½	11	5	15	31	-----	147	18	9	------	43	6	209½	26	------	15
6	6	24½	4	5	15	19	-----	87	11	9	------	31	6	149½	19	------	15	44	-----	212	26	4	----
7	-----	27	4	9	------	19	6	89½	12	------	15	32	----	152	19	4	------	44	6	214½	26	7	15
7	6	29½	5	------	15	20	-----	92	12	4	------	32	6	154½	19	7	15	45	----	217	26	11	----
8	-----	32	5	4	------	20	6	94½	12	7	15	33	-----	157	19	11	------	45	6	219½	27	2	15
8	6	34½	5	7	15	21	-----	97	12	11	------	33	6	159½	20	2	15	46	----	222	27	6	----
9	-----	37	5	11	------	21	6	99½	13	2	15	34	-----	162	20	6	------	46	6	224½	27	9	15
9	6	39½	6	2	15	22	-----	102	13	6	------	34	6	164½	20	9	15	47	----	227	28	1	----
10	-----	42	6	6	------	22	6	104½	13	9	15	35	----	167	21	1	------	47	6	229½	28	4	15
10	6	44½	6	9	15	23	-----	107	14	1	------	35	6	169½	21	4	15	48	----	232	28	8	----
11	-----	47	7	1	------	23	6	109½	14	4	15	36	----	172	21	8	------	48	6	234½	28	11	15
11	6	49½	7	4	15	24	-----	112	14	8	------	36	6	174½	21	11	15	49	---	237	29	3	---
12	-----	52	7	8	------	24	6	114½	14	11	15	37	-----	177	22	3	------	49	6	239½	29	6	15
12	6	54½	7	11	15	25	-----	117	15	3	------	37	6	179½	22	6	15	50	----	242	29	10	----

REPORT OF THE PHYSICIAN

OF THE

State Prison at San Quentin, California.

PHYSICIAN'S REPORT.

PREVALENT DISEASES TREATED.

Diseases.	First Quarter.	Second Quarter.	Third Quarter.	Fourth Quarter.	Total.
Aneurism			5	9	14
Asthma	7	10	9	20	46
Abscess	13	11	12	16	52
Amputation		3			3
Bronchitis	19	34	23	26	102
Boils	14	12	14	22	62
Burns	6	4	10	11	31
Biliary calculi			1		1
Constipation	95	135	105	115	450
Catarrh	53	85	51	37	226
Carbuncle		3	10	11	24
Diarrhœa	73	75	65	95	308
Diabetes		1	3	17	21
Dyspepsia	16	21	16	26	79
Dislocation		2	3	5	10
Dysentery	10	18	28	24	80
Dropsy		1	4	1	6
Eczema	5	11	15	25	56
Erysipelas	6	3	8	9	26
Epilepsy	2	1	4	10	17
Fever, intermittent	17	41	32	31	94
Fever, remittent	12	15	25	22	74
Fever, typho-malaria	9	10	6		25
Fracture		8	7	12	27
Fistula		14	11		25
Gonorrhœa	12	8	10	13	43
Hernia	5	24	27	26	82
Hæmoptysis	3	9	14	17	43
Insanity, partial	8	14	41	49	112
Indigestion	67	75	85	110	337
Lumbago	42	27			69
Neuralgia	20	10	29	44	103
Ophthalmia	3		7	14	24
Phthisis pulmonalis	19	15	21	25	80
Parotiditis	2	5	8	13	28
Pneumonia	3	2			5
Rheumatism	65	48	50	96	259
Syphilis, primary	7	10	14	18	49
Syphilis, secondary	7	6	7	8	28
Stricture	2		2	1	5
Sprains		7	18	27	52
Scalds			4	10	14
Tonsilitis	4	18	15	20	57
Uticaria	3	5	2	10	20
Wounds, incised	8	4	11	26	49
Wounds, lacerated	15	18	14	29	76
Wounds, contused	9	1	7	3	20
Unclassified	274	1,227	1,034	1,510	4,045
Totals	904	2,006	1,881	2,611	7,402

PREVALENT DISEASES TREATED—Continued.

	First Quarter.	Second Quarter.	Third Quarter.	Fourth Quarter.	Totals.
Calls on Physician	2,420	2,442	2,980	3,174	11,016
Daily average	26	27	33	35	
Visited in cells	65	90	109	105	369
Daily average	1	1	1	1	
Men excused from labor	904	919	994	1,268	4,085
Daily average	10	11	11	14	
Patients admitted	16	26	20	20	82
Patients discharged	14	12	19	22	67
Patients in hospital	------	------	------	------	------
Died in hospital	1	6	6	2	15

DEATHS.

NAME.	Nativity.	Disease.	Date of Death.
Donovan, Johana	Ireland	Pneumonia	September 23, 1884.
Talmante, L.	Mexico	Phthisis pulmonalis	November 7, 1884.
Gerow, W.	American	Fever, typhoid	November 19, 1884.
Mason, E.	American	Fever, typhoid	November 27, 1884.
Schlagrate, J.	Germany	Hemorrhage	December 13, 1884.
Powers, C.	American	Suicide	December 19, 1884.
Farr, G. M.	American	Epilepsy	December 22, 1884.
Rose, L.	Mexico	Phthisis pulmonalis	January 11, 1885.
Schell, J.	Germany	Inanition	January 9, 1885.
Welch, John	Germany	Phthisis pulmonalis	February 5, 1885.
Cheong, Foon Ark	China	Phthisis pulmonalis	February 14, 1885.
Silvas, C.	Mexico	Ulcerated stomach	February 28, 1885.
Dwarte, C.	Mexico	Phthisis pulmonalis	March 19, 1885.
Clark, P.	American	Softening of brain	April 19, 1885.
Ah Sewey	China	Phthisis pulmonalis	May 21, 1885.

REPORT OF THE CHAPLAIN

OF THE

State Prison at San Quentin, California.

CHAPLAIN'S REPORT.

To the Hon. Paul Shirley, Warden:

Dear Sir: I have the honor to submit herewith, my report of the several departments under my charge, for the year ending June 30, 1885.

BOYS' DEPARTMENT.

There were sixty boys, under nineteen years of age, connected with this department at the close of my last annual report. Since then fifty-eight have been admitted and forty-eight discharged, by expiration of sentence or pardon, leaving the present number to be seventy, or a net increase of ten. I beg leave to renew the recommendations made in former reports of the necessity for the establishment of a State Reformatory School, for the confinement, instruction, and, so far as possible, the reformation of these juvenile delinquents. The State Prison is no place for them, and the county jails are one hundred per cent worse. The Industrial School of San Francisco, even if properly conducted, is not a State institution, and so necessarily limited in its accommodations. It will be a most desirable event if we can ever see in California an institution like the Elmira Reformatory in New York in successful operation. All that it would cost would be repaid many fold in the practical good that would follow. I sincerely trust that not another legislative session will close without proper steps having been taken for that purpose.

With the exception of about two weeks, when the jute factory was closed, most of the boys were engaged in work therein, and others in the other shops. This daily and constant work is best for their health and morals, and I would not recommend any change, unless it be the establishment of evening schools—say two or three times a week—for their benefit, and for the use, also, of such of the men as would appreciate the privilege by attendance and proper behavior. I believe that at least one hundred would gladly avail themselves of the opportunity, and that such schools would not only be a help to the morals of the men, but, also, to the discipline of the prison. I respectfully commend the subject to your consideration.

LIBRARY.

There is no falling off in the attractions and benign influence of this department of the prison. The increase during the year has not been as great as I could have wished. I expect, however, soon to receive a donation of about one hundred volumes, from the Free Public Library in San Francisco, for which thanks are due and given. I again and urgently renew the recommendations heretofore made, that the Legislature appropriate at least $500 annually for the purchase of books and magazines for the library, the same to be expended under the direction of the Warden and Librarian.

The statistics of the library are as follows: Number of volumes July 1, 1884, 4,691; number of volumes July 1, 1885, 4,839, being a net increase of 148, and this after a donation made during the year of about 220 volumes to Folsom.

There are two divisions to the library, viz.: the public, containing 3,432 volumes, and the Catholic, having 1,407. I have an assistant in charge of each, both of course being prisoners.

Books may be drawn from the library every day, but the principal issues are on Tuesdays and Saturdays. During the year 14,860 volumes were drawn, being an average of 1,238 per month.

DONATIONS.

We have again been indebted to that friend of the prisoner, the Rev. W. D. A. Mathews, of Onarga, Illinois, for his usual annual donation of many barrels and boxes of papers, magazines, periodicals, and books, gathered by him from all quarters, and sent for the use of the unfortunate. Through his instrumentality, also, all this contribution was conveyed free on the overland railroad to Ogden. From that place to San Francisco, the Central Pacific Railroad Company, as heretofore, made no charge. Due acknowledgments are here made to all the companies for their liberality. The Rev. James Woodworth, Secretary of the Prison Reform Association, has also laid us under obligations for the many bags of papers and magazines that have reached us through his instrumentality. We have also been indebted to many other kind friends for their remembrances of the prisoners. Could I recall their names, I would gladly give them a place in this report. Due acknowledgment was made in each case. The donations for the year aggregate as follows:

Newspapers, miscellaneous	9,023
Newspapers, religious	1,118
Newspapers, pictorial	300
Magazines	292
Periodicals	1,125
Bibles and school books	330

BINDERY.

Under the charge of a bookbinder and assistant (prisoners), work has been done here as follows:

Books rebound	294
Books repaired	251
Papers bound in parcels	100
Copy books made	633
Tablets and tags made for the offices, packages	1,240
Balance sheets bound	2
Stub books made	2
Monthly reports bound	7
Letter books bound	2
Index books made	6
Blotting pads made	3

RELIGIOUS SERVICES.

These have been continued as heretofore, on each Sunday morning, and also on Thanksgiving day and Christmas. Appropriate services were also held on Memorial Day and the Fourth of July. On the first and fifth Sundays in each month I officiate; on the second Sunday, the Rev. C. Gallian,

S. J., has regularly attended, celebrated mass, and preached. On the third Sunday, the Rev. James Woodworth, Secretary of the California Prison Commission, has preached, as he has regularly done for nearly twenty years. On the fourth Sunday, different ministers have officiated, as invited by myself. I return thanks to the Rev. Dr. Dwinell of Oakland, to Rev. Messrs. Crosby and Deal of San Rafael, and Aaron Williams of San Francisco, for their very acceptable services. I am also indebted to Messrs. Charles Montgomery and Sidney West of San Francisco, for the several Sunday addresses they have made to the prison congregation. They are deservedly favorites with the men, and always command large audiences. The holy communion has been publicly administered by me four times, and, as I honestly believe, to those who were prepared to receive the same.

The Sisters of Mercy continue their monthly visits to the prison, and I am always glad to welcome them. Their excellent character and kindly ministrations exert an influence for good upon the women here confined. They can thus perceive that they are not wholly deserted by their sex, and I could wish that some of our Protestant religionists of the gentler sex would "go and do likewise."

It is my intention to commence regular religious services—at least semimonthly—in the women's department, on the first Sunday in August. The recent additions and improvements made in the building set apart for the women, will give me a room suitable for that purpose. I know that I shall meet with a hearty coöperation on the part of the excellent Matron, Mrs. Lancaster, who, I am firmly persuaded, will prove herself to be the "right person in the right place."

EMPLOYÉS.

These are the same in number, though not as individuals, as before, viz.: two assistants in the library, a bookbinder and his assistants, and a janitor, all prisoners.

I have officiated at seventeen funerals, two more than during the previous year.

I cannot close without returning to you, personally, my acknowledgments for your cordial coöperation with me, in the management of the several departments under my charge. It often makes a pleasure out of what might otherwise be a task.

Respectfully, your obedient servant,

WM. H. HILL,
Chaplain.

San Quentin, July 1, 1885.

REPORT OF THE WARDEN

OF THE

State Prison at Folsom, California.

WARDEN'S REPORT.

Warden's Office, State Prison at Folsom, California,
Folsom, June 30, 1885.

To the honorable State Board of Prison Directors:

Gentlemen: It gives me pleasure in presenting my report for the thirty-sixth fiscal year, to refer to the promptness with which the Legislature provided for the deficiencies in the appropriations for the support of the State Prisons during the thirty-fifth and thirty-sixth fiscal years. The scant appropriation for the thirty-fifth fiscal year had necessitated the borrowing of $8,800 from the National Bank of D. O. Mills & Co. to support the prison during the last month of that year, and the increased population of the institution foreshadowed a considerable deficiency in the appropriation for the thirty-sixth fiscal year. Although the action of the Legislature in passing the necessary bills was only just, as the most careful precautions had been taken by your honorable Board to insure compliance with all the requirements of the law intended to operate in cases of emergency, still, as the cry for economy and retrenchment had been raised in the halls of the Capitol, and as it is always much easier to find a reason for refusing than for granting such appropriations, I desire to record my appreciation of the courtesy shown by the committees having charge of the appropriations, and of the members of the Senate and Assembly for their liberality in passing the necessary measures. The readiness with which these bills were introduced and carried through the several stages of legislation, can be credited to the high personal regard of the legislators for the members of your honorable Board.

The loan obtained from the National Bank of D. O. Mills & Co. was liquidated by the transfer of the Controller's warrant for $7,000 and interest for the use of the money for ten months. The augmented appropriation for the thirty-sixth fiscal year has just met the expenses for the year, the earnings having fallen off by reason of the temporary cessation of the demand for granite for street work in San Francisco, caused by a strong competition on the part of a dealer claiming to represent other quarries.

As the interruption of the demand for curbing and crosswalks may be prolonged for some time, it has been deemed advisable to engage in the manufacture of monuments and coping for cemetery plots, and I am of the opinion that a good sale for the articles can be found. In the yard there are specimens of stonecutting and polishing that can be advantageously placed on exhibition, and when it becomes generally known that such work can be procured at the prison, I feel confident that there will be steady demand for all that we can produce. The prisoners take pride in the work which requires skill, and they very readily acquire the dexterity which enables them to do first-class work. This desire to become proficient workmen is very noticeable, and all proper measures are taken to encourage the prisoners in their effort, as it is evidently a very strong indication of a desire to reform and to depend upon honest labor for support after being liberated. No better proof of the pride of the prisoner in his ability to do good work need be asked for than will be found in an inspection of the south wall of the addition to the prison. Stonecutters and masons have striven to show how much their work surpasses the work of the free men who were employed in the construction of the original building, and the prisoners do not need to be told that their work is greatly superior, for that fact is self-evident.

The work upon the prison wall has gone steadily on, and each day the value of the property is being increased. If the actual value of the improvements should be placed to the credit of the prison the apparent maintaining cost of the institution would be greatly diminished. There is still a great deal of work to do, but when another year has rolled by it will be found that the State has an institution that can be pointed to with pride as one of the handsomest of its public buildings, and created at very small cost.

The relations of the prison with the Natoma Water and Mining Company remain the same as at my last report, except that there has been a decision unfavorable to the State in the suit against the company to compel them to complete the canal by the labor of our prisoners. The case has been taken to the Supreme Court by the Attorney-General and the special counsel employed to look after it, and I am informed that the prospects are in favor of an early decision. A speedy settlement is very desirable.

The health of the prisoners has been so good that Dr. Durant, the Prison Physician, feels justified in inviting a comparison with the health record of any other penal institution having the same number of inmates; and I fully concur with him in claiming that the locality is now as healthy as any in the whole Sacramento Valley. The Physician's report shows that the death roll is not quite one and three quarters per cent of the average population, and that not one fifth of one per cent should be justly charged to the locality. It is a very gratifying showing in favor of the section of country, as well as a splendid tribute to the skill and care of the Prison Physician.

The reports of the Turnkey, Commissary, Physician, and Moral Instructor, accompany this. I am indebted to these officers and to Capt. Chambers, my zealous and untiring Captain of the Guard, for very efficient aid in administering the affairs of the prison.

Very respectfully,

JOHN McCOMB,
Warden.

CASH RECEIPTS,

From July 1, 1884, to June 30, 1885.

MONTHS.	Balances on Hand.	State Treasury.	Quarry.	Commissary Sales.	House Rent.	Medicines.	Farm.	Live Stock.	Rope.	Miscellaneous.	D. O. Mills.	Totals.
1884—July	$537 94	$2,391 04	$808 70		$51 25	$1 25	$195 11	$19 50				$4,004 79
August			1,484 47						$238 00			1,722 47
September		19,899 78	3,339 03		60 00	10 90				$117 71	$8,800 00	32,227 42
October		9,690 01	1,507 67	$18 45	40 00	2 00				1 55		11,259 68
November			2,422 56									2,422 56
December		9,967 90	655 87		20 00	1 60						10,645 37
1885—January		16,958 23	1,747 42		40 00	1 50						18,747 15
February			454 84					1 00				455 84
March		7,453 86	1,302 93		20 00	7 25						8,784 04
April		18,457 81	4,677 95		50 00	2 00						23,187 76
May		7,147 00	2,191 16		25 00	75		51 84		5 60		9,421 35
June		19,524 06	427 40	20 70	25 33			16 88		19 95		20,034 32
Totals	$537 91	$111,489 69	$21,020 00	$39 15	$331 58	$27 25	$195 11	$89 22	$238 00	$144 81	$8,800 00	$142,912 75

CASH DISBURSEMENTS,

From July 1, 1884, to June 30, 1885.

MONTHS.	Commissary.	Salaries.	Expenses.	Freight.	Discharged Prisoners.	Interest.	D. O. Mills Loan.	Live Stock.	Totals.
1884—July	$1,750 48	$493 34	$267 96	$440 45	$80 70				$3,032 93
August	258 70	524 00	151 35		70 40				1,004 45
September	22,059 41	8,481 36	990 90	344 66	143 45				32,019 78
October	6,574 29	2,879 02	287 25	170 84	51 75	$113 42	$2,000 00		12,076 57
November		53 30	120 06		28 50				201 86
December	7,067 58	2,929 12	278 76	163 76	75 65				10,514 87
1885—January	14,130 46	5,413 68	307 80		71 90				19,923 84
February		2,767 90	232 30		43 75				3,043 95
March	7,407 86	241 86	358 35		134 15				8,142 22
April	15,191 89	5,559 60	519 43		90 85	73 48			21,435 25
May	147 00	2,982 86	578 21		94 30	600 00	6,800 00	$775 00	11,977 37
June	16,488 35	2,936 19	150 91		124 89				19,700 34
Totals	$91,076 02	$35,262 23	$4,243 28	$1,119 71	$1,010 29	$786 90	$8,800 00	$775 00	$143,073 43

The discrepancy between the receipts and disbursements is on account of cash balances, viz.:

July 1, 1884	$537 94
July 1, 1885	377 26
	$160 68

I hereby certify that the foregoing is a true statement of the receipts and expenditures of the State Prison at Folsom, for the period commencing July 1, 1884, and ending June 30, 1885.

JOHN McCOMB, Warden.

STATISTICS OF THE STATE PRISON AT FOLSOM,

From July 1, 1884, to June 30, 1885.

R. J. MURPHY, Turnkey.

TABLE No. 1.

Recapitulation of Received and Discharged Prisoners, from July 1, 1884, to June 30, 1885.

Month.	By Commitment	By Commitment, United States Prisoner	Returned by Order of Court	Returned Convict Witnesses	Escapes Recaptured	Transferred from San Quentin	Total Received	Pardoned Conditionally	Taken Out on New Trial	Discharged per Act	Taken Out as Witness	Killed in Attempt to Escape	Taken Out on Probable Cause for Appeal	Taken Out on Writ of Habeas Corpus	Transferred to San Quentin	Taken Out on New Charge	Commuted	Pardoned	Escaped	Died	Suicided	Total Discharged	Number of Prisoners on Hand at Close of Each Month
1884—July	19		1				20	1	2	6				1			2		1	1		14	472
August	10				1		11	1		4								2				7	476
September	19	1					20		2	7							4	1		2		16	480
October	23					1	24	1		5								2	1	1		10	494
November	16						16			2			1		1			2				6	504
December	13						13			6							2		1			9	508
1885—January	24			1			25			8	1				1					1	1	12	521
February	24			1		1	26			5	1	1	1				2					10	537
March	28			1			29			11	1						4	1				17	549
April	22		1				23			5					1		2	1				9	563
May	18			1			19		1	10	3					1	3	1		1		20	562
June	14			1			15			11							3	1	1	1		17	561
Totals	230	1	2	5	1	2	241	3	5	80	6	1	2	1	3	1	22	11	4	7	1	147	......

TABLE No. 2.

Nativity of Prisoners.

United States and Territories.	Number.	Foreign.	Number.
Alabama	2	Austria	3
Arkansas	1	Australia	1
California	109	Canada	11
Connecticut	2	Chili	2
Colorado	2	Central America	1
Georgia	3	China	69
Illinois	12	Corsica	1
Iowa	7	Denmark	3
Indiana	6	East Indies	1
Kentucky	7	France	7
Louisiana	3	Germany	29
Massachusetts	16	Holland	1
Maryland	7	Ireland	39
Missouri	13	Italy	3
Maine	7	Mexico	13
Michigan	14	Newfoundland	1
New Hampshire	1	New Brunswick	1
New York	62	Nova Scotia	3
New Jersey	4	Japan	1
North Carolina	1	Poland	2
Ohio	8	Prussia	3
Pennsylvania	18	Russia	2
Rhode Island	5	South America	2
Texas	1	Scotland	5
Tennessee	1	Switzerland	3
Virginia	5	New South Wales	2
Vermont	1	Sweden	1
Wisconsin	5	Turkey	1
Total	323	England	27
		Total	238

RECAPITULATION.

United States	323
Foreign	238
Total	561

TABLE No. 3.

Classification of Crime.

Crime.	Number.
Arson, second degree	3
Attempted burglary	6
Attempted crime against nature	1
Attempt to kidnap	1
Assault to rob	4
Assault deadly weapon	11
Assault to murder	17
Assault with deadly weapon and prior	4
Assault to murder and prior	1
Assault to rob and prior	2
Assault to rape	1
Attempt grand larceny	2
Burglary	18
Burglary, first degree	92
Burglary, second degree	80
Burglary, first degree and prior	13
Burglary, first and second degrees and grand larceny	1
Burglary, second degree and grand larceny	1
Bigamy	1
Counterfeiting	2
Extortion	1
Embezzlement	3
Felony	11
Forgery	11
Forgery and prior	1
Grand larceny	104
Grand larceny and prior	5
Grand larceny and forgery	1
Grand larceny and burglary	1
Grand larceny and felony	1
Injuring public jail	1
Illegal voting	1
Incest	1
Infamous crime against nature	1
Murder	5
Murder, first degree	34
Murder, second degree	19
Manslaughter	15
Mayhem	1
Perjury	6
Petit larceny and prior	19
Robbery	50
Robbery and prior	3
Robbing United States mail	1
Rape	4
Total	561

TABLE No. 4.

Terms of Imprisonment.

Term.	Number.
One half year	2
One year	20
One and one half years	4
Two years	46
Two and one half years	8
Three years	55
Three and one half years	4
Four years	31
Four and one half years	2
Four and three quarters years	1
Five years	118
Six years	26
Seven years	22
Eight years	22
Nine years	4
Nine and eleven twelfths years	1
Ten years	67
Eleven years	1
Twelve years	14
Thirteen years	1
Fourteen years	11
Fifteen years	26
Sixteen years	2
Seventeen years	1
Eighteen years	2
Twenty years	5
Twenty-one years	1
Twenty-two years	1
Twenty-five years	6
Thirty years	2
Thirty-four years	1
Forty years	2
Fifty years	3
Fifty-five years	1
Life	48
Total	561

TABLE No. 5.

Age of Prisoners.

Age.	Number.	Age.	Number.
From fourteen to twenty years	35	From sixty to seventy years	9
From twenty to thirty years	263	From seventy to eighty years	2
From thirty to forty years	134		
From forty to fifty years	82	Total	561
From fifty to sixty years	36		

TABLE No. 6.

Number of Prisoners from each County.

County.	Number.	County.	Number.
Amador	3	Shasta	1
Alameda	34	San Joaquin	8
Butte	5	Sierra	1
Colusa	15	Stanislaus	13
Calaveras	2	Siskiyou	1
Contra Costa	1	Santa Clara	9
Del Norte	1	Santa Barbara	11
El Dorado	6	San Bernardino	3
Fresno	3	San Luis Obispo	7
Kern	6	Santa Cruz	3
Lake	1	Solano	23
Los Angeles	13	San Diego	1
Marin	2	Sonoma	8
Monterey	2	Sutter	1
Mendocino	4	Tehama	5
Modoc	3	Tulare	1
Merced	3	Tuolumne	3
Napa	2	Trinity	2
Nevada	12	Yuba	15
Placer	2	Yolo	7
Plumas	2		
San Francisco	239	Total	561
Sacramento	77		

TABLE No. 7.

Educational Abilities of Prisoners.

Read and write	483
Read and not write	23
Illiterate	55
Total	561

TABLE No. 8.

Number of Terms.

Prisoners serving their first term	392
Prisoners serving their second term	132
Prisoners serving their third term	24
Prisoners serving their fourth term	5
Prisoners serving their fifth term	4
Prisoners serving their sixth term	4
Total	561

TABLE No. 9.

Occupation of Prisoners.

Occupation.	Number.	Occupation.	Number.
Baker	6	Morocco dresser	1
Butcher	7	Millwright	2
Blacksmith	12	Merchant	1
Broom maker	1	No occupation	1
Boatman	3	Painter	17
Boiler maker	1	Physician	1
Barber	13	Peddler	1
Bookkeeper	5	Pipe maker	1
Bootmaker	1	Printer	3
Brakesman	1	Pastry cook	1
Bricklayer	3	Plumber	4
Barkeeper	2	Plasterer	1
Clerk	11	Reporter	1
Cook	35	Railroad employé	2
Carder	1	Railway accountant	1
Carver	1	Sailor	17
Coachman	1	Stonecutter	4
Cigarmaker	3	Salesman	1
Carpenter	10	Saddler	2
Cabinetmaker	1	Servant	1
Dyer	1	Steward	2
Dentist	1	Sawyer	1
Druggist	2	Stone mason	1
Decorator	1	Soldier	1
Dairyman	1	School teacher	1
Engineer	13	Sash and blind maker	1
Fireman	4	Sheepherder	1
Farmer	19	Sailmaker	3
Fisherman	2	Shoecutter	1
Gardener	5	Storekeeper	1
Hostler	10	Sign painter	1
Horseshoer	2	Tailor	7
Harnessmaker	4	Tinsmith	5
Iron puddler	1	Teamster	14
Jockey	2	Turner	1
Laborer	186	Vaquero	5
Locksmith	3	Valet	1
Lumberman	2	Waiter	30
Laundryman	19	Watchmaker	2
Milliner	2	Woodchopper	1
Miner	8		
Molder	4	Total	561
Machinist	9		

TABLE No. 10.

Religious Belief.

Protestant	188
Catholic	253
Hebrew	7
Pagan	69
Morman	1
Irreligious	43
Total	561

REPORT OF THE COMMISSARY.

Commissary Department, State Prison at
Folsom, California, July 25, 1885.

General John McComb, Warden State Prison at Folsom:

Dear Sir: I have the honor to hand you, herewith, my report for the fiscal year ending June 30, 1885. It is in tabular form, as follows: Table No. 1, purchases; No. 2, issues.

Respectfully,
JOHN McCOMB, Jr.,
Commissary.

TABLE No. 1.

Purchases for the Fiscal Year ending June 30, 1885, Commissary Department, State Prison at Folsom, California.

Month.	Amount.	Month.	Amount.
1884—July	$6,839 75	1885—January	$7,453 86
August	6,941 14	February	7,331 99
September	6,745 13	March	7,996 76
October	7,177 44	April	7,653 11
November	6,780 82	May	8,813 95
December	7,377 80	June	6,203 90
		Total	$87,315 65

TABLE No. 2.

Issues, Freight, and Telegraph Expenses for the Fiscal Year ending June 30, 1885, Commissary Department, State Prison at Folsom.

Months.	Subsistence.	Forage.	Bedding.	Clothing	Shoes.	Laundry.	Dispensary.	Light.	Stationery.
1884—July	$3,585 03		$11 02	$666 96	$86 13	$9 75	$126 03	$131 84	$32 82
August	3,524 29	$135 91		525 59	217 45	24 21	105 14	251 18	14 30
September	3,239 99	157 22	30 56	344 39	139 59	6 88	110 34	260 68	41 13
October	3,570 01		20 03	296 46	80 05	8 93	77 07	257 55	25 26
November	2,883 06	193 41	44 07	284 08	105 86	9 49	63 40	373 11	51 08
December	3,033 04		979 28	569 18	255 75	5 54	79 46	175 13	40 82
1885—January	3,581 70	313 28	227 89	437 54	202 62	6 84	101 91	692 24	31 65
February	3,178 40		142 26	568 42	139 14	11 55	65 34	201 22	25 72
March	3,403 34	235 70	142 50	314 77	263 48	4 14	101 33	360 07	13 26
April	3,979 62	89 03	23 79	583 41	193 05	15 49	41 12	280 00	45 47
May	3,484 04	87 98	22 13	681 56	326 51	2 88	65 29	200 13	14 87
June	3,958 48	90 23	63 46	512 61	213 71	28 30	169 04	522 91	121 27
Totals	$41,421 00	$1,302 76	$1,706 99	$5,784 97	$2,223 34	$134 00	$1,105 57	$3,706 06	$457 65

Months.	Wagons and Harness.	Permanent Furniture.	Quarry.	Farm.	General Expense.	Machinery.	Fuel.	Prison Improvement.
1884—July	$20 20	$495 22	$343 40	$48 77	$592 76			$25 58
August	59 91	42 42	653 28	181 56	461 15	$29 07	$457 13	88 48
September	6 28	51 75	730 99	29 01	259 92	81 15	363 17	303 86
October	7 54	48 61	570 44	26 86	275 13	27 82		255 67
November	22 25	157 29	333 29	41 75	601 49	63 04	575 78	
December	1 14	61 84	382 00	28 88	506 34	20 17	672 68	
1885—January	35 46	92 76	117 16	114 29	362 35	13 08	78 18	283 23
February	54 50	31 49	263 34	97 06	695 61	42 75		250 36
March	6 78	165 66	386 68	89 03	1,024 18	36 50	1,126 03	144 32
April	127 08	353 01	414 89	78 02	709 27		419 75	423 05
May	44 03	188 20	356 13	148 13	808 26	58 50	444 83	746 90
June	50 41	503 84	602 01	666 35	995 11	6 84	634 19	721 97
Totals	$435 58	$2,195 09	$5,153 61	$1,549 71	$7,291 57	$378 92	$4,771 74	$3,243 42

TABLE No. 2—Continued.

MONTHS.	Wooden Buildings.	Railroad Material.	Ordnance.	Live Stock.	Prison Wall.	Telephone Line.	Sales.	Tools in Use.	Tin Shop.
1884—July	$306 36								
August	7 53								$101 09
September	446 51		$6 65	$5 00	$209 00				23 13
October	595 20				252 97				20 04
November		$618 98	26 45						
December					405 00				32 75
1885—January		64 03							18 41
February									48
March	648 70		7 75	65 00	170 00				
April	362 02	53 32	24 31			$25 16			33 87
May	49 13	327 00	111 34		210 38	59 70	$20 71	$33 07	
June	610 07		131 25		250 25		11 25	126 81	27 92
Totals	$3,025 52	$1,063 33	$307 75	$70 00	$1,497 60	$84 86	$31 96	$159 88	$257 69

MONTHS.	Carpenter Shop.	Blacksmith Shop.	Paint Shop	Shoe Shop.	Tailor Shop.	Freight.	Telegraphing.	Total.
1884—July	$15 53	$1 11	$162 71			$87 84	$14 77	$6,763 83
August	18 26		136 29			158 76	110 77	7,303 77
September	15 98		116 98	$12 00		131 47	17 58	7,141 21
October	9 99		39 00	16 25		170 94	17 27	6,669 09
November	27 99		71 08	2 50		38 37	18 23	6,605 05
December	4 44		39 79	2 25		269 58	16 86	7,581 92
1885—January	11 20		102 79	3 12		111 03	23 06	7,025 82
February	13 39	41 29				278 74	23 89	6,127 95
March	4 34	2 04	19 92		$82 39	43 31	22 40	8,883 72
April	10 21	8 31				360 83	30 57	8,684 65
May	2 74	27 01		23 44		92 54	21 80	8,659 23
June						141 81	16 75	11,176 84
Totals	$134 07	$79 76	$688 56	$59 56	$82 39	$1,885 22	$333 95	$92,624 08

REPORT OF PHYSICIAN.

To General John McComb, Warden State Prison at Folsom:

SIR: I have the honor to submit the following report of the Medical Department for the year ending June 30, 1885.

In making this report I desire to call your attention to, and congratulate you upon the extreme healthfulness of the inmates during the past year. I believe no other penal institution, with the same number of prisoners, can show a cleaner bill of health or a smaller death record. This is due in part, I think, to the most excellent sanitary measures you have seen fit to establish, and more directly to the general healthfulness of the place.

The daily record shows the total number of calls on the physician for everything, from the most trivial cut or sore finger to a severe case of typho-malarial fever, to have been 1,539, a monthly average of 128, and a daily average of 4 and a fraction. This with an average of 519 prisoners. The whole number excused from work was 552, a monthly average of 45, and a daily of 1½ (these excuses were for the most part but for the day, and nearly all the men reported for work the following day). When you consider the fact that these prisoners do more work than free men in the same place, that they are exposed to the hot sun, and in the so called "deadly malaria of Folsom," it seems to me to be an excellent showing and to speak volumes for the health of the location.

The hospital register gives the true idea of the sickness of the place. On July 1, 1884, there were 2 men in the hospital; there was admitted during the year, 32; of these, 25 were discharged, 6 died, and 1 was pardoned. Let us look at the diseases for which they were sent to hospital: Five had consumption, five rheumatism, four general debility, three intermittent fever, five wounds of various kinds, while cancer of stomach, inflammation of liver, congestion of brain, bilious fever, typho-malarial fever, syphilis, inflammation spermatic cord, hemorrhage of lungs, carbuncle, and dislocation of hip, are credited with one each. This shows an agreeable absence of local diseases. Only three cases of intermittent fever in a whole year of sufficient severity to be sent to hospital, while remittent and bilious remittent are wholly absent, and but one case each of bilious and typho-malarial fevers. Of those sent to hospital, three were sent more than once; thus one with rheumatism was admitted three times, one with consumption, and one each with hemorrhage of lungs and chronic bronchitis twice each. The death roll is credited with nine victims, not quite 1¾ per cent. Let us analyze the causes of death and see if they would not have been liable to occur in any locality. One was killed while attempting to escape, one died from rupture of heart, one suicided by hanging, one was killed by falling from the balcony, two died from consumption, one from general debility, one from cancer of stomach, and only one which in any way could be attributed to local causes. This was a man who was transferred from San Quentin, and who died soon after admission, of congestive chill. Thus, we have less than one fifth of one per cent by what might be termed local diseases. Truly, Folsom may challenge comparison with her more favored rival "across the bay."

I call attention with pride to the cleanliness and purity of air of the prison. As a member of the State Board of Health remarked, in speaking of the place, "But very few of our public institutions, even our public schools, *approach* in cleanliness this prison. To this we owe much for our continued good health through a season of more than usual heat and consequent general sickness. Another and a far more potent cause for our escape is the almost total absence of all malarious diseases in Folsom and its immediate vicinity. During an active private practice in this locality of twelve years, I have seen the gradual subsidence and almost total extinction of malaria in all its forms in this vicinity, until now it is, if not the most pleasant, one of the most healthy localities in the Sacramento Valley.

In proof of this I point to the following tables:

Average number of prisoners	519
Total number of calls on physician	1,539
Total number excused from work	552
Total number admitted to hospital	32
Total number discharged from hospital	25
Died	6
Pardoned	1

Total number of deaths, 9. Causes:

Consumption	2	Suicide	1
Cancer of stomach	1	Fracture of skull	1
General debility	1	Killed while attempting to escape	1
Congestive chills	1		—
Rupture of heart	1	Total	9

Most respectfully submitted.

F. C. DURANT, M.D.,
Physician State Prison at Folsom.

MORAL INSTRUCTOR'S REPORT

State Prison at Folsom, June 30, 1885.

General John McComb, Warden:

Sir: I have the honor to submit the following report of my stewardship as Moral Instructor:

But before giving a detailed account of my stewardship, permit me to thank you in behalf of the more intelligent portion of the prisoners and myself, for the paternal care with which you and the officers under your command govern the five hundred and sixty-three prisoners now confined in this prison.

That the prisoners appreciate your paternal thoughtfulness is evinced by the very slight friction existing between officers and prisoners, and also by the remarkable good conduct of the prisoners, who represent every nationality in the world, to say nothing of several different tribes, which, when taken into consideration with the further fact that the same natural laws which govern one race do not govern another, is not a little surprising, and particularly to those who have studied the different natural laws that govern the different races of mankind.

LIBRARY DEPARTMENT.

Owing to the greatly increased number of prisoners within the past year, a greatly increased demand for literature has been made on me, which I have endeavored to supply by appeals to individuals, and to the principal public libraries in San Francisco. And I am pleased to say that my appeals have been answered in the form of several very desirous and numerous donations from the Mechanics' Institute and Odd Fellows' Library in San Francisco.

And from beyond the borders of our own State, that truly great philanthropist, the Rev. W. D. Mathews of Omarga, Illinois, deserves our greatest esteem and our heartfelt thanks for the munificent donation of books and papers which he sent us a few months since.

We are also indebted to the kind thoughtfulness of the Chaplain, Rev. W. H. Hill, at San Quentin Prison, for 150 bound volumes of magazines.

And we are still further indebted for a liberal supply of papers, to the proprietors of the San Francisco *Monitor*, *Weekly Bulletin*, *Call*, *Alta*, and *Pacific*.

Number of books and periodicals in library June 30, 1884	708
Number of books and periodicals received by contributions during year	1,122
Dropped from list, no longer serviceable	660
Number of books and periodicals in library	1,170
Bound volumes in circulation	454
Unbound magazines not issuable	716
Bibles and testaments in circulation	200
School books in use	160
Number of newspapers received	4,000
Number of prisoners drawing books	224

REQUISITIONS.

I have been obliged to make frequent requisitions for school books and stationery of an indispensable character, such as slates, paper for copy books, primary readers, ink, pens, slate pencils, spellers, readers, envelopes, mucilage, etc.

These requisitions were made at such times and in such quantities as necessity required, and which has enabled me to supply the increased demand, and large class of prisoners wholly illiterate.

The library is open every day, and I am pleased to state that my assistant in the library (himself a prisoner) deserves great credit, not only for the manner in which he discharges his duties in the library, but also for the great interest he takes in educating the illiterate, and particularly those who can only speak the Spanish language.

I still continue to teach by the socratic or conversational system, which I fully set forth in my last annual report, as the past year's experience has taught me that it is much more beneficial in its results than lecturing.

Trusting that the course pursued by me as Moral Instructor will prove entirely satisfactory to yourself,

I remain, very respectfully, yours,

JAMES GAULEY.

SEVENTH ANNUAL REPORT

OF THE

STATE BOARD OF PRISON DIRECTORS

OF THE

STATE OF CALIFORNIA,

FOR THE THIRTY-SEVENTH FISCAL YEAR, ENDING JUNE 30, 1886.

SACRAMENTO:
STATE OFFICE.......JAMES J. AYERS, SUPT. STATE PRINTING.
1886.

STATE BOARD OF PRISON DIRECTORS.

JOHN BOGGS, President	Colusa.
CHARLES SONNTAG	San Francisco.
W. C. HENDRICKS	Oroville.
JAS. H. WILKINS	San Rafael.
R. T. DEVLIN	Sacramento.

OFFICERS OF THE SAN QUENTIN PRISON.

PAUL SHIRLEY	Warden.
GILES G. CRANDALL	Clerk.
GEO. W. THOMAS	Superintendent Manufacturing Departments.
CHAS. AULL	Captain of the Yard.
THOS. B. EAGLE, M.D.	Resident Physician.
E. A. REDDY	Captain of the Guard.

OFFICERS OF THE STATE PRISON AT FOLSOM.

JOHN McCOMB	Warden
JOHN M. MINER	Clerk.
BENJ. CHAMBERS	Captain of the Guard.
F. C. DURANT, M.D.	Physician.

REPORT.

San Quentin, Cal., November 1, 1886.

To his Excellency George Stoneman, *Governor of California:*

The State Board of Prison Directors herewith submit their annual report for the last fiscal year, together with the reports of the officers of the State Prison at San Quentin, and the State Prison at Folsom.

Many important changes in the government and usages of the prisons have been instituted during the last fiscal year, all of which, after mature consideration, we have deemed for the best interest of the State. They are briefly specified, as follows:

For many years officers and guards had been permitted to draw supplies from the Commissary Department, being charged therefor actual cost, and a very small percentage to cover shrinkage, waste, and handling. This necessitated the services of three clerks, at a gross salary of $433 40 per month. Moreover, the system had been the cause, from time immemorial, of criticism and direct charges of malfeasance. We cannot say whether these were justly or unjustly preferred; but, under all the circumstances, every consideration of policy argued in favor of abolishing the privilege. State employés are, however, still permitted to purchase meat and fuel from the Commissary, which articles they could not otherwise obtain without great inconvenience. One clerk, as purchasing agent, now transacts the business of the Commissary, at a salary of $125 per month, a saving of over $300 per month to the State in salary account.

At San Quentin Prison, under the old contract system, contractors, in order to secure more faithful labor from prisoners in the shops, had been accustomed to pay them, for their exclusive benefit, a sum ranging from ten cents a day upwards for extra work. In other words, if a convict performed work over and above what was allotted to him as a daily task, he received from the contractor a proportionate compensation. When the manufacturing departments passed into the hands of the State, it was not deemed prudent or profitable by the administration then in charge to discontinue this custom. On the contrary, the system was enlarged so as to embrace all convicts in the various shops, without regard to whether they performed extra work or not. The per diem allowance, ranging from five to ten cents a day, was drawn from the earnings of the prison. Although this was done in the best of faith and with the best of intentions, it was, nevertheless, very harshly commented upon by several legislative committees as an act entirely without warrant in law. In view of the uncertainty of the law, and of the further fact that the money so paid to prisoners was seldom put to a useful account, we suspended such payments from the first of January, 1886. Thanks to the firmness of our officers, this change was made without the anticipated friction among the convicts. A saving of $1,500 per month to the State was thus effected. We await legislation either approving our course or giving us a definite law under which to work.

The addition to the building for female prisoners was mentioned in our last report. Upon its completion, the Woman's Department was entirely reorganized. A competent Matron was placed in charge, sewing machines were purchased, and all able-bodied prisoners allotted daily tasks. All clothing used at the penitentiary is now stitched in this department. The female prisoners were distinctively uniformed for the first time, as the law contemplates, orderly habits of life have been enforced, and the atmosphere of the institution—moral, social, and physical—improved in every aspect. There is no matter of prison reform in which we feel more justified in congratulating ourselves.

Custom had long tolerated a latitude in the way of visiting the prison at San Quentin, unheard of in any similar institution. Every Sunday the grounds were crowded with people, most of whom were attracted by morbid curiosity alone: and even on week days this was more or less the case. Prisoners were allowed to see their friends about at their own pleasure. Grave abuses arose from this license. The traffic in opium and other contraband articles was facilitated, discipline was demoralized, and the officers seriously impeded in the discharge of their duties. Determined to correct these evils, we confined visiting to the first and third Sundays of the month: and, in order to effectually check the introduction of opium, a wire screen was placed in the reception room to separate prisoners and visitors. Later, we further limited visiting to the first Sunday of the month. We are happy to say that these precautions have been effectual in excluding contraband articles from the yard, and in doing away with much that was undesirable in the prison's management.

The appropriation for the prison at San Quentin, for the last fiscal year, was $129,500. This was based on the supposition that the earnings would amount to $80,000. It soon became evident, however, that a great falling off in the earnings was inevitable. The saddlery department was closed permanently, owing to the pressure of eastern competition. The output of the sash, door, and blind factory was decreased forty per cent, from lack of demand: and from the same cause the manufacture of furniture was practically abandoned. The outlook for profit from the jute mill was also very unpromising. Desiring to avoid a deficiency, if possible, we enforced the most rigid economy in every department. The force of officers and guards was cut down, wherever it could be done without absolute prejudice to the service. The closest supervision was exercised over both the convict and officers' kitchens, to prevent any possible waste. All improvements, not absolutely necessary, were postponed. By these means, and by an unexpected rise in manufactured jute goods, the year was not only tided over without a deficiency, but a handsome surplus was left in the treasury, although the net earnings amounted to barely $53,000, instead of the $80,000 anticipated.

At the same time there was no scaling in anything essential to health or the ordinary comforts of prison life. Realizing that some compensation was necessary for the loss of the money per diem, the bill of fare of the general convicts' table was enlarged and greatly improved. Prisoners yielding extraordinary service to the State were rewarded by seats at a special table, and those who did their best in a lower plane of labor were given certain extra allowances from the Commissary. The sewer system, always bad, had degenerated into a condition positively dangerous to health. It was replaced by a new system, at considerable cost, which, though planned by local ingenuity, is as perfect as could be devised by the most skillful expert. The old hospital building, which was neither more nor less than a disgrace to the State, was replaced by a structure complete in every department, at a cash outlay of nearly $8,000.

At Folsom Prison, where the convict population increased twenty per cent during the year, we were less fortunate. The appropriation of $95,000 for the fiscal year for that institution was based on an estimated earning of $40,000 from the granite quarries. Owing to the unparalleled depression in the stone market, only a very small percentage of this was realized. No other source of income was available; and though the closest economy was practiced, and every form of expense minimized, a deficiency was the inevitable result. Accordingly, under the provisions of the law, we made application to the State Board of Examiners for permission to create an indebtedness of $12,100 for the support of the prison for the last fiscal year. The reasons for such action are stated in our application to the Board of Examiners, which was as follows:

OFFICE OF THE STATE BOARD OF PRISON DIRECTORS,
STATE PRISON AT FOLSOM, April 9, 1886.

To the honorable State Board of Examiners, Sacramento, California:

GENTLEMEN: The undersigned, State Board of Prison Directors, in asking consent of your honorable Board to create an indebtedness for the maintenance of the State Prison, at Folsom, for the remainder of the thirty-seventh fiscal year, beg leave to respectfully represent the unavoidable necessity for the expenditure of a sum in excess of the appropriation made by the Legislature. The number of convicts has increased from five hundred and eight to six hundred and forty-one, since the framing of the bill making appropriations for the support of the government, thus increasing the number of prisoners over one fifth, and, unavoidably, in almost like proportion, increasing the expenditures, while the earnings of the prison have been lessened by reason of a dull market for the products. With the practice of the strictest economy, there will still be required $28,500 for the support of the prison for the three months ending the thirtieth of June, 1886, while to meet this liability, we have only the earnings of the prison, which may be estimated at $16,400, making an unavoidable necessity for the expenditure of $12,100 in excess of the appropriation made by the Legislature.

In consideration of the above facts, we respectfully request your honorable Board to allow us to create an indebtedness of $12,100 for the support of the State Prison, at Folsom, for the remainder of the thirty-seventh fiscal year.

Respectfully submitted.

JOHN BOGGS,
CHAS. SONNTAG,
W. C. HENDRICKS,
JAS. H. WILKINS,
ROBT. T. DEVLIN,
State Board of Prison Directors.

The State Board of Examiners, after carefully examining into the facts, and finding that the necessity for the creation of such indebtedness existed, gave the permission requested. Their answer is as follows:

OFFICE STATE BOARD OF EXAMINERS, SACRAMENTO, May 12, 1886.

The Board of Directors of the State Prisons of the State of California, having, on the ninth day of April, 1886, reported to this Board that of the appropriation for the support of the State Prison at Folsom for the thirty-seventh fiscal year, there will be a deficiency at the end of said year amounting to the sum of $28,500, less the amount of the estimated earnings of the prison, which is placed at the sum of $16,400, making an unavoidable necessity for the expenditure of the sum of $12,100 in excess of the appropriation made by law; that the reason why such expenditure is necessary is the fact that the number of prisoners confined in said prison has increased from five hundred and eight to six hundred and forty-one since said appropriation was made.

Now, therefore, this Board, having duly considered said report or statement, and the facts and premises connected therewith, do find that said statement is true and correct. It is, therefore, determined by this Board that it is unavoidably necessary that an expenditure in excess of the appropriation for said prison for the thirty-seventh fiscal year should be made. It is further ordered by this Board, that the said Board of Prison Directors be and they are hereby authorized to make an expenditure for the support of the State Prison at Folsom for the thirty-seventh fiscal year, in excess of the appropriation made by law, viz.: not exceeding the sum of $12,100; provided, however, that said Board of

Prison Directors shall not borrow any money for the purpose herein allowed, except in monthly sums, and then only in an amount sufficient to meet and pay the authorized expenditure which has accrued against said prison for the preceding month.

The authorization shall be and serve as a certificate to said Prison Directors to make such expenditure.

Done at the office of the State Board of Examiners, on the day above written.

GEORGE STONEMAN, Governor,
THOS. L. THOMPSON, Secretary of State,
E. C. MARSHALL, Attorney-General,
State Board of Examiners.

Under this authority the sum of $12,100 was borrowed from the National Bank of D. O. Mills & Co., at the rate of seven per cent per annum. This, with interest, will amount to $12,900, which must be met by a special appropriation, as also a similar deficiency for the current year.

This financial shortage should emphasize the necessity of allowing each prison an appropriation in full for all expense for the year. The earnings are necessarily an uncertain quantity. They may fall far below estimates from causes that cannot be foreseen. If the Legislature be not in session to pass a deficiency bill, the only recourse is to borrow money for the support of the institution, which is not always an easy matter. Should an appropriation for all expense be allowed, the earnings, whatever they may be, should be paid directly into the State Treasury. We respectfully ask your Excellency to make a recommendation to the Legislature in accordance with this suggestion. We estimate the total cost of maintaining the State Prison at San Quentin at $201,500, and the total cost of maintaining the State Prison at Folsom at $120,000 per year.

Many improvements of a minor description have been made at both prisons. These are too numerous to specify, but amount to considerable in the aggregate. Great pains have been taken at Folsom Prison in the work of landscape gardening and in the general ornamentation of the grounds. The result is in the highest degree flattering to the Warden's good taste.

During the last fiscal year a labor agitation of unusual proportions swept the State. It was largely directed against the alleged competition of convict with free labor. Your Board was charged with violating the constitutional provisions forbidding the letting of the labor of convicts by contract, but, after an exhaustive examination, you found such complaints without foundation in fact. At the same time you suggested that the operations of the furniture department at San Quentin and the sale of stone from the Folsom Prison quarry be discontinued. These suggestions have been followed to the letter, so far at least as the discharge of previous business obligations would permit. The future employment of convicts is now a subject for the best thought of the next legislative session. Hitherto the statutes relating to the industrial systems at the two prisons have been meager, vague, and unsatisfactory. We now ask for legislation that will define our powers and duties in the most express and unequivocal language. While none more earnestly desire to avoid competition with free labor than ourselves, at the same time we recognize the absolute necessity of maintaining a system of labor among prisoners; and, if that can be made profitable without interference with free mechanics, so much the better. To keep the prisoners in absolute idleness would be a step backward into the dark ages of penology; and the results, if understood, would be abhorrent to every right thinking man in the State.

So far as San Quentin Prison is concerned, we can suggest a ready means of employment which will in no considerable degree conflict with the interests of free labor, and which has never been objected to on that score. We refer to the manufacture of jute goods. The present jute mill at San

Quentin has now been in operation some five years. It has passed through its experimental stages. Its operations are now conducted with a mechanical accuracy equal to that of the best managed manufacturing concern. We are therefore able to speak definitely of results. While it is true that, owing to great fluctuations in the market for raw jute and the manufactured goods, some seasons may give an unsatisfactory financial showing, still, year in, year out, there is assured profit ahead. During the last fiscal year our net profit from the mill was $14,027 43, and we hope to make a still better showing for the current year as, owing to the constantly increasing skill of the hands, the output steadily becomes greater, while the cost of running remains the same. The mill now gives employment to about four hundred prisoners. Another mill, of equal capacity, would absorb the entire force not engaged in the domestic affairs of the prison or physically disabled. We have corresponded with manufacturers of jute machinery in Europe, and have figured closely on the other items of expense. The whole would aggregate a trifle over $150,000. Should the Legislature see fit to appropriate this sum, the question of how to employ convict labor at San Quentin would be settled definitely and forever. At the same time the farmers of the State would receive an additional protection against the operations of grain bag manipulators. The refusal of this Board to have any connection with the ring that endeavored last Spring to make a corner on bags, and so extort hundreds of thousands of dollars from the productive industries of California, was one of the principal causes of the overthrow of that combination.

It may be stated here that we have been placed at a serious disadvantage by reason of the insufficiency of the revolving fund of $40,000, created at the last session of the Legislature, for the purchase of raw jute. Sailing vessels leave Calcutta, the market for raw jute, in the month of December and January only. It is, of course, advisable to purchase a supply for the entire year, for such shipment, and so take advantage of low freights. The $40,000 allowed us, however, is entirely inadequate. We have been compelled to order shipments by steamer, as our supply becomes exhausted, which entails a heavy added expense. In fact, our loss from this cause is amounting to four tenths of a cent per bag—a good profit in itself. We therefore urgently request your Excellency to recommend to the Legislature that the revolving fund be increased from $40,000 to $70,000, so that we may at once be able to take advantage of the market, and ship our entire year's supply of raw jute by clipper vessels. Should the Legislature see fit to appropriate funds for a second jute plant, another revolving fund in proportion would be necessary.

At Folsom Prison, the solution of the problem of how to employ convict labor without coming into conflict with free labor is not so simple a proposition. On the other hand, it is not so immediately urgent. There is work enough ahead in the construction of a wall, and in a variety of local improvements, to occupy the active force for several years. Still, the problem must be met sooner or later, and it is well to consider it now. Our own investigations have not resulted in any definite plan, and we respectfully ask the special coöperation of the Legislature in settling this much vexed question. The most tangible suggestion that we have noted, is that the prisoners be employed in cutting rough stone for the seawall in San Francisco, and for other public works. Any plan that contemplates moving the prisoners from the immediate vicinity of the prisons, such as in the construction of highways, etc., we consider impracticable. Besides, it would be competing with the most helpless class of free labor—that which is unskilled.

We call your attention to the urgent necessity for a liberal appropriation for the construction of new buildings at San Quentin Prison. The Warden in his report has specified these generally, but we deem it our duty to lay special emphasis on some of his recommendations. The building over the front entrance is in a most dangerous condition. It was built over thirty years ago, and was, at its best, a very unsatisfactory structure. Time has told heavily on it, and at present it would be condemned and torn down in any well regulated municipality. It is so unsafe that a high wind endangers its stability, and a reasonably sharp earthquake shock would inevitably reduce it to ruins. Unless the Legislature makes a suitable appropriation to replace this rotten structure with a new building, we fear that in our next report we will be obliged to chronicle a great catastrophe, coupled with appalling loss of life. Again, the quarters for officers and guards, and the necessary rooms for officers, are now totally inadequate. We most earnestly recommend that the Legislature appropriate a sum sufficient for the construction of a building similar to the one immediately south of the front gate. Lastly, but most especially, we need an appropriation for a building for the criminal insane. There is at neither prison proper quarters for the care of these unfortunate wards of the State. This is particularly true of the older prison. As a rule, those who are disordered in mind are disordered in body also. Yet at San Quentin there are no better accommodations for these poor lunatics than a damp, unwholesome, dreary alley, into which the sunshine never comes, and in which exuberant health must soon decay. The law provides that such insane may be sent to either of the two lunatic asylums, but the Resident Physicians have regularly objected to receiving them. Their protests, we must admit, are reasonable. Setting aside the intractability of such patients and the great precautions that must be taken against their escape, it is unjust to the innocent insane that they should be forced to associate with those whose infirmity, as a rule, is the result of their own vices and ancestral debasement. Such an association, we understand, has a most disastrous effect upon the general inmates of the Stockton and Napa Asylums, and we cannot blame the Resident Physicians for endeavoring to limit it. The only remedy lies in the construction of proper quarters, at one or the other prison, where the criminal insane can be cared for somewhat after the manner of civilized and humane usages. We suggest San Quentin Prison as the proper site, because the old hospital building, now disused, could be turned into a creditable lunatic asylum at a trifling expense. We sincerely hope this appeal may not be in vain, and that your Excellency will lay special stress on this point in your message to the Legislature.

As will be seen by the reports of the respective physicians, the health of both prisons has been excellent. The somewhat greater death rate at San Quentin Prison was probably occasioned by the former defective sewer system. Now, that this has been remedied, we hope to make a still more favorable showing in our next report.

During former years various parties employed at the prison were permitted to build houses on the State land at San Quentin. These houses, as a rule, have either passed from the hands of the original owners, or at least, are not occupied by them. Most of them are rented to present employés of the State at exorbitant rates. Regarding this use of State land as vicious and illegal, we gave the owners of such houses notice to remove by February 1, 1887. This extended time was given in order that the legislative committees might inspect the buildings, and determine whether it would be advisable for the State to purchase them. If not, some similar accommodation must be provided for employés and their families, as no other is now available.

A question often arises in our deliberations that touches a sympathetic cord. It not infrequently happens that a prisoner who has left a poverty-stricken family in the outer world saves for the State by diligent labor, hundreds of dollars per month. We call to mind the case of one man who does the work that formerly occupied two free men at an aggregate salary of $150 a month and board. In such instance, where the State is so much a gainer, could it not afford to give some small portion of this man's earnings to his destitute, almost starving wife and child? We suggest that, if the Legislature would frame a law giving the Board of Prison Directors some discretion in such cases, much distress might be mitigated, and, by stimulating prisoners to extra exertion, no loss be sustained by the State.

For a full account of the proceedings in the controversy between the State and the successor of the Natoma Water Power Company, see the supplemental report of Warden McComb.

Your Excellency has made it a rule during your administration to refer all applications for pardon from the State Prisons to this Board. Appreciating the high compliment that such confidence implied, we have labored honestly and zealously to give you our fair, candid, and intelligent judgment in each and every case, and you have almost invariably followed our recommendations. In so doing you have met at the hands of the press a criticism as unjust as it has been cruel. We cannot close our report, therefore, without special reference to the scope, nature, and results of your acts of executive clemency.

Members of our Board have made a statistical study of this question, and we can affirm with assurance that, taking into consideration the great increase of prison population, your acts of merciful discretion have been fewer than those of any Governor during the past twenty years. Should the comparison go further, and consider the relative merits and results of your pardons with those of your predecessors, the showing would amaze the State. Some of our Governors have been grossly imposed upon in pardon matters. Deceived by ex parte statements, they have often turned loose on the community the worst and most dangerous criminals within the prison walls. In an incredibly short time most of them have found their way back to the penitentiaries of this or neighboring States. The proportion of those who become useful members of society was painfully small. You, on the contrary, through your disinterested constitutional advisers, have kept yourself informed as to the true character of every applicant. No confirmed criminal has been recommended to you by our Board, except in one or two cases of men on their death-bed. Our recommendations have been confined to those who had been the victims of impulse, passion, or circumstance. We have never allowed ourselves to be swayed by sympathy, where the past life of the applicant for executive clemency bore the trace of innate viciousness. Most especially, we have sent you no favorable recommendations, unless it was made clear to us that there was a well founded hope of the prisoner's reformation. Coinciding in our ideas as you have, we assert that you have made infinitely the best line of pardons that any administration can boast of. With two or three exceptions, all the beneficiaries of your mercy are leading industrious, law-abiding lives. Instead of being a burden to the State, they are useful members of the body politic. When you look back over the acts of your administration, we believe nothing will give you more satisfaction than the good work you have done in this direction; and we are confident that time will more than justify your course.

The number of convicts at San Quentin Prison at the close of the fiscal year was one thousand two hundred and forty-seven. At Folsom Prison the number was six hundred and forty-four—a heavy increase over the showing of last year. Possibly business depression and lack of work has in some degree occasioned this. At the same time it does not account for all. The means of repressing crime should, under the circumstances, command the best efforts of our legislators.

We feel deeply indebted to Wardens Shirley and McComb, and their subordinate officers, for their untiring industry and good judgment, both in maintaining discipline and guarding the interests of the State. They have joined heartily in all our plans for economy and reform, and their endeavors have borne the good fruit of success. The State is to be congratulated in having such faithful and efficient servants.

And now that our official relations, so long and pleasantly maintained, are about to terminate, we must express our deep appreciation of the confidence reposed in us and the uniform courtesy received by us at your hands. Your policy in endeavoring to take the prisons out of the field of politics, which is in line with the most advanced thought in the science of penology, has earned for you the gratitude of the State, and it has been our earnest desire to see that your wishes were carried out in this direction. We are confident that if the prisons of the State were once entirely eliminated from politics, the people of California would no more permit a return to the former condition of affairs than they would tolerate turning the Insane and Deaf and Dumb Asylums into political machines.

In conclusion, we believe that your administration has been more effective in the work of prison reform than any other administration that the State has seen. Again we thank you for many courtesies.

JOHN BOGGS.
W. C. HENDRICKS.
CHAS. SONNTAG.
JAS. H. WILKINS.
ROBT. T. DEVLIN.

REPORT OF THE WARDEN

OF THE

State Prison at San Quentin, California.

WARDEN'S REPORT.

Warden's Office, California State Prison,
San Quentin, September, 1886.

To the honorable State Board of Prison Directors:

Gentlemen: I have the honor herewith to submit my annual report as Warden of the State Prison at San Quentin.

During the past fiscal year the best of order has prevailed among the prisoners; they have been kept constantly employed in the different industries in operation at this institution, and the high state of efficiency attained in the various departments of labor has been exceedingly gratifying.

The system inaugurated under a former administration and continued by me under your direction, of allowing a per diem to prisoners laboring in the different manufacturing departments, not proving as satisfactory as was desired, was by order of your honorable Board, discontinued on the first of January last. This system of compensation having been in operation so long, and the convicts becoming so accustomed to this mode of treatment, as a reward for industry and good conduct, its discontinuance caused considerable dissatisfaction, and some trouble was experienced in the jute department in reconciling them to the new order of things, and securing the same results from their labor as formerly, but the best of feeling now exists, having been brought about by the adoption of a system of rewards to those deserving of it by their industry and strict obedience to the rules and regulations of the prison.

The most extensive industry in this institution is the jute department, which has given an average daily employment to three hundred and twenty convicts from the commencement of the fiscal year to November 30, 1885, and a daily average to three hundred and eighty, from February 1, to June 30, 1886.

Owing to the continued low price of grain bags and other fabrics manufactured from jute, of which we had a large stock in our warehouses, and the small supply of jute on hand, and the limited amount of money in the "Jute Revolving Fund" for the purchase of raw material, it was deemed advisable by your honorable body to discontinue operations and close the mill for a few months, or until arrangements could be made to secure a fresh consignment of jute from Calcutta. Therefore, in obedience to your order, work was suspended on the thirtieth day of November, 1885. As our goods appreciated in value, I was enabled during the months of January and February to dispose of a large portion of the stock on hand at a small profit, and these sales aided us materially in meeting the obligations entered into by the purchase of an additional supply of jute, and anticipating its early arrival, the mill was started up again on the first of February, and has been running without interruption ever since, and with the most gratifying results. During the first four weeks but little was accomplished, our output being only fifty-five thousand eight hundred and sixty yards of burlaps. This small yield was due, in a great measure, to the dissatisfaction existing amongst the weavers on account of the abolishment of the per diem system, and partly to the number of new and inexperienced men we were compelled to commence operations with. After the new system of rewarding the meritorious was fully inaugurated, a new era began in the jute department, as shown by the large and increased output of the mill during the last four months of the present fiscal year, as appears by the following table:

MONTH.	Monthly Output—yards.	Average Daily Output—yards.	Number of Days Worked.	Percentage over Average Daily Output during Preceding Year (5,250 yds.).
1886—March	149,520	5,750	26	9.52
April	192,755	7,413	26	41.20
May	174,895	7,287	24	38.80
June	186,865	7,387	25½	39.58

Or an average increase of 32.11 per cent over the product of the preceding year.

This result was accomplished without any additional machinery or increase in the running expenses, and there is a prospect of a still greater average production; in point of fact, the output of the mill from the first of July to this date having been at the rate of nearly fifty-three per cent over the average production of the preceding year; nor has there ever been a time in the history of the prison when the rules and regulations have been so closely observed, or better order and discipline maintained among the prisoners than at the present time. The accounts of the jute department from July 1 to December 31, 1885, show a loss of $2,465 77, and from January 1 to June 30, 1886, a gain of $16,493 20, or a net gain for the year of $14,027 43. $3,036 85 of this amount was profit on goods in warehouses January 1, 1886, and $13,456 35 profit on fabrics manufactured during the last four months of the fiscal year.

Out of the proceeds derived from sales of jute fabrics during the year, there was paid into the State Treasury the total amount ($40,000) appropriated by the last Legislature to form a "Revolving Fund" for the purchase of jute, and we had this sum to our credit at the close of the fiscal year, available for the further purchase of raw material.

We are in daily expectation of the arrival from Calcutta of two thousand four hundred bales of jute purchased by your honorable body. This will keep the mill employed until the first of February next; and the five hundred bales, bought in addition, and expected to arrive in September, will give us a stock of raw material for another month, or until March, 1887.

Immediate provision should be made for securing a further supply to reach us during the month of February, so that our mill can be kept in continual operation, and up to such time as sailers leaving Calcutta for San Francisco can reach here.

As a rule, November, December, and January are the only months in which vessels leave Calcutta for this port, and it takes from one hundred and twenty to one hundred and thirty-five days to make the passage.

The new crop of jute will be ready for shipment in September, and, as this material can generally be purchased in the early part of the season at a lower figure than later, we ought to avail ourselves of the first sailer to bring us a fresh supply.

The manufacture of jute is the only branch of industry at which convicts can be employed without coming in competition with the honest free labor of the State; the only other manufacturer on the coast being the California Jute Mills at Oakland, which employs, I am told, Chinese labor almost exclusively. Both mills, if run to their utmost capacity, could only supply a limited portion—not over fifteen per cent of the jute goods used on this coast—and the great bulk of these goods must be drawn from India and other foreign countries until the time arrives, if it ever does, when labor can be had as cheap here as in those countries, thereby making it desirable for capitalists to engage in this manufacture.

The employment of convicts at this industry, to the almost total exclusion of any other, should silence all opposition to convict labor, and would, in a great measure, be a solution of a so far unsolved problem: "The profitable employment of convicts, without conflicting with any industry pursued by and conducted with free labor."

In this connection, I would respectfully suggest and earnestly recommend, that an appropriation be asked for an additional jute plant, and in support of this recommendation, I would say, it is my opinion that the convicts are more contented, less troublesome, and under better discipline and control while employed with the spindle and loom, than in any other department, and, at the same time, assist very materially in supporting themselves and their fellow prisoners. If the appropriation be granted, the increased output of grain bags and other fabrics would reduce the cost of their manufacture so much, that we could, to a great extent, prevent rings, corners, and syndicates being formed to the detriment and injury of the farming interests of the State.

The appropriation necessary for an additional plant of jute machinery, similar to the one now in operation (with some few changes), will be $69,107 64. This is the price of the machinery needed, loaded on shipboard at Liverpool, England, two thirds of this amount to be paid when the machinery is placed on board the vessel, and the balance when it arrives in San Francisco. The freight, duty, and insurance will amount to about $35,000; the shafting, pulleys, belting, etc., to $12,069 50, four additional boilers, including connections, etc., $6,000, and the construction of a building adjoining, and similar to our present mill, $27,905, making a total cost of $150,082 14.

I would also suggest that an appropriation be asked, for the sum of $30,000, to be added to the "Jute Revolving Fund." This amount, together with the $40,000 already in that fund, is necessary for the purchase of five thousand bales, or one year's supply of jute. The present sum is entirely too small to meet the requirements of the mill, and if an appropriation is made for another plant, it will be necessary to increase the "Revolving Fund" to at least $100,000. Having this sum at your disposal, advantage could be taken of the Calcutta market, and far more satisfactory and reasonable rates could be secured, than if we were forced, at times, to sell our stock of manufactured goods for little or no profit, or dispose of them after the grain season is over, in order to procure the necessary means to purchase the raw material required to keep the mill in operation.

The Sash, Door, and Blind Department has been operated on the same plan as last year, and the system has proven as satisfactory as any that can be devised for the employment of the criminal element. The State furnishes the motive power and both the free and convict labor, and manufactures at a stipulated price per piece, but does not own the machinery or the raw materials, nor has the State any interest in the output. The large stock of manufactured goods on hand, and the limited sales during the Winter and Spring, induced your honorable Board, at the request of the sash, door, and blind company, to make a reduction of forty per cent of the average output of the factory. This reduced the net earnings of this department, as compared with the previous year, $7,981 86, being a very material item of reduction in the funds necessary for the legitimate expenses of the prison, and as our biennial appropriations are calculated upon the income and expenditure of each preceding two years, the shrinkage in the income from the manufacturing departments becomes exceedingly embarrassing to the administration when such large sums are lost to the fund for the support of this institution.

The Furniture Department has given constant daily employment to nearly one hundred convicts during the past year, and has been conducted upon the same system as heretofore. Complaints having been presented to his Excellency Governor Stoneman, by the labor unions of the State, that this department of manufacture was brought into direct and personal competition with the industries properly belonging to the people, and, therefore, doing great injury to the working classes, he recommended to your honorable body the discontinuance of this department, and, in compliance with his recommendation, you directed me by resolution to discontinue operations and close this department as soon as the material now on hand was worked up. I am now engaged in carrying out your instructions, which I hope to bring to a successful completion in a short time. Owing to the low rate of freights across the continent, large consignments of furniture were shipped to this coast, manufactured in the northern and eastern penitentiaries, which overstocked the market and were the direct cause of reducing our net earnings from those of last year $1,565 49.

The Harness and Tannery Department, which was operated as heretofore on the piece price plan, has not been as successful as was anticipated or calculated upon last year. The depressed condition of the market in this line of trade, caused by the reduced rates of freight by the overland roads, gave eastern manufacturers an opportunity to stock this market with leather and harness, and reduced the price so low that no profit was left to the parties operating this department, and they concluded therefore to discontinue this industry, which was gradually wound up, and work finally suspended on the fifteenth of July last. The closing of this department still further reduced the estimated earnings for this fiscal year $4,070.

The Brick Department is worked wholly upon State account. The construction of the necessary permanent improvements, and the constant repairs and alterations required for the care and security of the large number of prisoners confined in this institution, necessitated the consumption of a large number of brick, and the balance was sold in open market for the best attainable price. The ruling rates for the season have been unprecedentedly low; therefore this industry has not been as profitable as heretofore, and on closing our accounts we find a net profit of only $1,478 04, a decrease from last year of $4,464 78.

Recapitulation of the net earnings of the manufacturing departments:

Jute Department earnings	$14,027 43
Door and Sash Department earnings	23,391 48
Furniture Department earnings	8,231 27
Harness and Tannery Department earnings	3,351 28
Brick Department earnings	1,478 04
Total	$50,479 50

Deduct:

Expenses of Engineers' Department	$1,734 69	
Loss in Foundry Department and Machine Shop	288 34	
		$2,023 03
Net earnings of the manufacturing departments		$48,456 47

Permanent improvements during the year consisted in the completion of the building for Female Department, roofing and flooring three large warehouses, and erecting a handsome two-story brick hospital building. To make these improvements, we have expended from the prison earnings the sum of $10,602 95, and we have utilized the labor of prisoners to the extent of 4,770½ days, which, estimated at $1 per day, would increase the cost $4,770 50, making the total value of improvements $15,073 45.

I again beg to call your attention to the unsafe condition of the building over the front gate, and occupied, in part, by my office; it is old and dilapidated, and liable at any time to fall and destroy both life and property, and I would respectfully suggest that an appropriation be asked for $19,000 for the purpose of removing the old and erecting a new building in its place.

And, as the front building on the south side of the above is too small and circumscribed for the officers and guards, I would suggest that a similar building be constructed on the north side for their greater accommodation; this will cost an additional $12,000.

An appropriation of $1,000 should also be asked for the reconstruction of the old building over the rear gate, which is fast going to decay and liable to tumble down at any time.

A further appropriation of $2,000 is absolutely necessary to construct new balconies around all the cell buildings, and repairing the stairs connecting therewith. They have been in use a number of years and have become very unsafe and dangerous, and must be rebuilt or some serious accident is sure to occur.

The roofs of all the cell buildings are very much in need of repair, and should be replaced with tin, which will require an expenditure of $1,200.

The brick walks around the cell buildings and other parts of the prison, are continually crumbling away; they collect a great deal of moisture, and as the sun never reaches them, they are always wet and cold, and not conducive to the health of the prisoners; I would, therefore, recommend that they be taken up and replaced with cement pavement. This would require $2,500.

The contemplated conversion of the old hospital into quarters for the insane prisoners has not been put into execution for the lack of the necessary funds, and means should be provided to make this very desirable change. This will require $2,000.

An appropriation of $2,500 will also be required to lay down new floors in the building occupied by the different shops; the lower floor is badly decayed, and has given away in a number of places and needs immediate reconstruction.

We are also in need of two additional guard-posts as recommended in my last report, one on the Saltwater Reservoir Hill, to overlook the main yards, and the other at Slaughter House Point to command the valley, brickyards, and steamboat landing; they should be constructed and each mounted with a machine gun, and will cost $4,050.

Recapitulation of the improvements needed:

Front gate building	$19,000 00
Officers' and guards' quarters	12,000 00
Reconstructing rear gate building	1,000 00
Balconies and stairs to cell buildings	2,000 00
Roofs to cell buildings	1,200 00
Cement pavement to replace brick walks	2,500 00
Changing old hospital into insane quarters	2,000 00
New floors in shop building	2,500 00
Two additional guard posts, with two machine guns	4,050 00
Total	$46,250 00

All of these improvements are much needed; in fact, most of them should have been commenced long ago, and I most earnestly recommend that no effort be spared to induce the Legislature to appropriate the necessary amount to make these much desired improvements.

For statements of financial transactions, and statistical tables of number of prisoners, etc., I beg to refer you to the reports of the Clerk, Captain of Yard and Turnkey, Resident Physician, and Chaplain, attached hereto.

It is extremely gratifying for me to state that all the officers and employés connected with this institution have acted in perfect accord in carrying out the orders of your honorable Board, and have used their best efforts toward making this management an efficient and successful one.

In conclusion, permit me to extend my thanks to your honorable Board for the continued confidence manifested toward me, and the courteous treatment I have always received at your hands.

Respectfully,

PAUL SHIRLEY, Warden.

REPORT OF THE CLERK

OF THE

State Prison at San Quentin, California.

CLERK'S REPORT.

Clerk's Office, California State Prison,
San Quentin, Cal., August 2, 1886.

Hon. Paul Shirley, Warden California State Prison, San Quentin:

Dear Sir: I beg to submit herewith tabulated statements showing the financial transactions of this prison during the thirty-seventh fiscal year, ending June 30, 1886.

Yours truly,

GILES D. CRANDALL, Clerk.

TABLE No. 1.

Cash Receipts of the State Prison at San Quentin during the Thirty-seventh Fiscal Year, ending June 30, 1886.

DATE.	State Treasury General Appropriations.	State Treasury Jute Revolving Fund.	United States.	Brick Department.	Door Department.	Furniture Department.	Foundry Department.	Harness Department.	Jute Department.	Tannery Department.
1885—July				$38 06	$4,612 26	$1,273 40	$31 75	$340 13	$7,114 93	$349 56
August	* $711 20		$731 45		4,494 09	1,042 06	62 68	323 96	4,953 25	176 22
September	12,588 79				3,714 42	849 49	8 28	311 97	2,260 84	140 93
October	27,599 65		805 00		3,963 40	1,007 78	8 97	270 86	2,669 59	128 26
November					4,235 87	1,063 66	16 07	249 47	5,917 33	155 45
December	25,108 64			8 30	3,597 89	1,065 72	7 35	348 64	3,275 45	158 43
1886—January	10,582 74				3,029 71	968 77	20 68	434 98	1,528 47	317 61
February	15,882 15		784 00		2,864 75	728 53	1 68	211 23	11,439 10	45 98
March	15,826 81				2,725 52	792 90	11 70	200 12	9,193 50	187 50
April	10,965 58	$11,680 00		935 08	3,013 82	1,022 51	3 32	176 53	3,800 82	31 25
May				125 00	2,965 25	1,054 35	2 87	164 51	35,412 80	
June	10,945 64		806 35	2,968 60	2,652 85	816 99	8 12	94 73	13,752 44	
Totals	$130,211 20	$11,680 00	$3,126 80	$4,075 04	$41,869 83	$11,686 16	$183 47	$3,127 13	$101,318 52	$1,691 19

DATE.	Commissary Department.	Hospital Department.	Stock Department.	Captain of the Yard's Department.	Library Donations by Visitors, Etc.	Labor Account.	Board and Rent Account.	Miscellaneous.	Totals.
Balance on hand June 30, 1885									$7,181 98
1885—July	$2,224 76	$20 70	$251 33	$718 20	$5 00	$126 00	$113 00		17,219 08
August	1,745 70	19 05	160 30	774 18	13 25	111 75	116 50	$122 50	15,558 14
September	1,073 30	10 60	166 35	337 20	17 20	69 00	127 65		21,676 02
October	1,236 61	15 15	156 98	184 85	37 24	100 00	120 00		38,304 34
November	484 85	16 00	184 25	389 40	28 60	102 00	120 00		12,952 95
December	794 88	15 30	168 85	477 65	7 75	102 25	122 75		35,259 85
1886—January	724 52	16 50	211 45	527 89	8 75	118 75	99 65	723 09	19,313 56
February	254 91	27 40	207 50	187 10	6 25	66 00	162 50		32,869 08
March	444 57	16 80	196 25	324 34	18 25	44 50	203 00		30,195 76
April	615 27	20 85	133 00	217 90	113 75	77 00	121 25		32,927 93
May	743 15	22 55	113 00	184 95	25 50	34 75	132 00		40,980 68
June	991 15	15 45	119 35	335 98	11 20	49 75	123 00		33,691 60
Totals	$11,333 67	$216 35	$2,068 61	$4,659 64	$292 74	$1,001 75	$1,561 30	$845 59	$338,140 97

* Balance appropriation for thirty sixth fiscal year.

TABLE No. 2.

Cash Disbursements of the State Prison at San Quentin, during the Thirty-seventh Fiscal Year, ending June 30, 1886.

DATE.	Merchandise.	Material.	Salaries.	Wages of Department Employés.	Allowance to Officers in lieu of Board.	Prisoners' Earnings.	Gratuities to Discharged Prisoners.	Transportation of Prisoners.	Escaped Prisoners.	State Treasury Jute R. Fund.
1885—July	$4,011 67	$6,262 06	$4,650 00	$2,171 00	$247 00	$1,331 70	$105 00	$42 05		
August	6,047 53	1,864 35	4,593 35	2,251 60	225 30	26 10	120 00	79 95		
September	9,617 12	2,021 70	4,651 70	2,151 75	243 40	3,104 89	88 50	78 20	$25 00	
October	19,893 89	2,312 98	4,630 00	2,098 00	247 00	2,877 03	120 00	119 90	6 00	
November	743 64	951 36	4,665 00	2,234 65	247 00	28 93	93 50	99 15	14 00	
December	20,039 63	2,058 96	4,675 00	2,055 00	247 00	1,668 03	93 50	36 85	3 50	
1886—January	9,920 61	367 78	4,670 00	1,757 05	254 25	1,301 24	85 00	144 35	18 00	
February	10,797 12	1,251 36	4,690 00	1,577 50	268 70		65 00	77 25		
March	10,397 40	1,087 73	4,663 35	1,824 63	268 70		75 00	71 60		$15,863 36
April	9,931 54	12,209 80	4,665 00	1,894 00	268 70		133 50	87 95	86 00	
May	541 13	489 15	4,655 00	1,860 50	268 70		130 00	101 25		35,816 64
June	21,346 92	1,429 41	4,706 65	1,790 00	268 70	949 95	72 50	79 65		
Totals	$123,288 20	$32,306 64	$55,915 05	$23,665 68	$3,054 45	$11,287 87	$1,181 50	$1,018 15	$152 50	$51,680 00

DATE.	Permanent Improvements.	General Repairs.	Expense of State Prison Directors.	General Expense.	Miscellaneous.	Gas Account.	Water Account.	United States.	Totals.
1885—July	$395 85	$45 95	$140 60	$214 30					$19,617 18
August	607 22	42 86	235 60	331 65	$311 53	$126 90		$21 40	16,885 34
September	223 61	10 15	235 40	87 25		141 00	$2,000 00	46 60	24,726 27
October	1,263 63	82 42	108 75	239 45	407 26	360 03	2,000 00		36,766 34
November	272 46	55 88	314 10	207 00	307 10				10,233 77
December	1,200 54	68 51		261 05	137 23	532 00	2,000 00	48 00	35,124 80
1886—January	185 12	60 35		235 90	137 23	315 88	429 27		19,882 03
February	378 60	30 38	531 70	92 65	75 80	289 49	436 15		20,561 70
March	36 55	19 46	192 10	139 18	117 50	219 89	477 82	50 35	35,504 62
April	13 05	36 97	217 55	112 82		237 58	517 22		30,411 68
May	69 25	58 68	220 20	423 18					44,633 68
June	12 05	87 36	255 95	375 60	627 22	402 66	1,038 07	55 10	33,497 79
Totals	$4,657 93	$598 97	$2,451 95	$2,720 03	$2,120 87	$2,625 43	$8,898 53	$221 45	$327,845 20
Balance on hand June 30, 1886									10,295 77
									$338,140 97

TABLE No. 3.

Exhibit of the Cost of Maintaining Prisoners for the Thirty-seventh Fiscal Year, ending June 30, 1886.

Month.	Salary.	Subsistence.	Bedding.	Clothing.	Forage.	Fuel.	Gas and Water.	Medicine.	Postage and Stationery.	Shoes.
1885—July	$4,218 35	$4,999 98	$149 46	$585 70	$178 35	$245 41	$1,141 00	$138 75	$64 71	$461 76
August	4,276 70	5,126 47	220 04	617 59	515 72	260 95	1,162 18	129 30	62 55	491 68
September	4,255 00	5,057 92	112 04	581 14	265 30	212 46	1,197 85	140 00	59 16	456 54
October	4,290 00	5,409 54	202 54	536 68	465 33	262 03	1,241 64	145 59	52 96	390 91
November	4,300 00	5,147 62	262 02	797 32	530 86	358 57	1,290 36	140 20	61 18	479 18
December	4,295 00	5,428 92	207 10	784 25	456 05	491 47	745 15	160 75	106 79	394 01
1886—January	4,315 00	5,501 83	215 02	409 51	357 70	457 53	*2 55	116 56	63 61	426 53
February	4,288 35	4,968 93	258 97	717 18	271 35	310 33	697 71	149 81	63 06	464 71
March	4,290 00	5,654 15	239 46	356 70	212 38	389 26	754 80	149 08	72 13	467 68
April	4,290 00	5,528 18	262 57	487 84	297 54	350 01	695 51	139 75	68 43	389 53
May	4,331 65	5,705 82	153 15	707 39	272 40	216 36	745 22	174 01	56 65	379 32
June	4,341 65	5,512 74	129 17	727 74	317 52	203 01	949 74	97 41	84 27	106 33
Totals	$51,491 70	$64,042 10	$2,411 54	$7,309 04	$4,140 50	$3,757 39	$10,623 71	$1,681 21	$815 50	$4,908 18

*A rebate on water bills for the past year of $723 09 was received in January.

Month.	Miscellaneous.	Total Cost per Month.	Average Number of Prisoners.	Cost per Capita per Month.	Per Day.	Average Cost per Head.	Per Month.
1885—July	$151 60	$12,335 07	1,217 74	$10 13	$0 32.6		
August	338 45	13,201 63	1,212 32	10 89	0 35.1	Salary	$3 48
September	402 12	12,739 53	1,223 87	10 41	0 34.7	Subsistence	4 32
October	543 60	13,540 82	1,232 70	10 99	0 35.4	Bedding	0 16
November	365 44	13,732 75	1,237 40	11 10	0 37.0	Clothing	0 50
December	446 93	13,516 42	1,238 50	10 91	0 35.2	Forage	0 28
1886—January	404 90	12,270 74	1,241 80	9 88	0 31.9	Fuel	0 25
February	323 59	12,515 99	1,239 04	10 00	0 35.7	Gas and water	0 72
March	393 81	12,979 45	1,249 60	10 38	0 33.5	Medicine	0 12
April	395 90	12,905 26	1,245 30	10 36	0 34.5	Postage and stationery	0 05
May	751 46	13,493 43	1,236 70	10 90	0 35.1	Shoes	0 33
June	310 95	12,778 53	1,238 37	10 36	0 34.5	Miscellaneous	0 32
Totals	$4,828 75	$156,009 62	1,234 45	$10 53	$0 34.6	Total per head per month	$10 53

TABLE No. 4.

California State Prison, San Quentin.

Assets.		
Buildings, and gas and water mains	$446,962 00	
Real estate and improvements	41,078 50	
Reservoirs	31,278 55	
Engines and machinery	35,250 00	
Jute factory and equipment	245,774 11	
Brick department	2,640 70	
Engineer's department	672 20	
Foundry department	6,282 91	
Furniture department	41,689 27	
Jute department	33,834 06	
Commissary department	2,440 43	
Captain of the Guards' department	8,317 50	
Captain of the Yard's department	19,922 57	
Hospital department	1,108 76	
Library department	902 85	
Stock department	8,497 00	
Warden's office	490 00	
Clerk's office	428 00	
Warden's house	2,922 50	
		$930,491 91
Due from the United States	$909 10	
Due from sundry debtors	5,950 77	
Cash, in "Jute Revolving Fund"	40,000 00	
Cash, balance on hand	10,295 77	
		57,155 64
Total assets June 30, 1886		$987,647 55
Liabilities.		
Unpaid bills for merchandise, jute, etc.	$18,928 94	
Unpaid wages of department employés	2,709 00	
Unpaid salaries of officers and guards	4,716 65	
Total liabilities June 30, 1886		$26,354 59
Excess of assets		$961,292 96

TABLE No. 5.

Earnings for Thirty-seventh Fiscal Year, ending June 30, 1886.

Brick department	$1,478 04	
Door department	23,391 48	
Furniture department	8,231 27	
Harness department	2,303 83	
Jute department	14,027 43	
Tannery department	1,047 45	
Total		$50,479 50
Deduct expense of Engineer's department	$1,734 69	
Deduct expense of foundry department	288 34	
		2,023 03
Net earnings of manufacturing departments		$48,456 47
Support of United States prisoners	$3,083 00	
Prison labor	8,472 17	
Library	82 52	
		11,637 69
Total earnings for the year		$60,094 16

TABLE No. 6.

Abstract of Expenses for Thirty-seventh Fiscal Year.

Advertising		$128 50
Interest		1,882 84
Captain of the Guards' department		1,310 67
Captain of the Yard's department		14,935 70
Commissary department		1,337 64
Hospital department		3,065 80
Stock department		2,508 70
Guards' mess	$9,695 95	
Officers' mess	2,663 19	
Prison mess	38,156 64	
Captain of Yard's mess	1,694 40	
Warden's house	4,614 90	
Allowances in lieu of board	2,330 15	
		59,155 23
Salaries		55,915 05
State Prison Directors' expense		2,384 45
General expense		2,500 48
General repairs		2,989 45
Warden's office	$356 49	
Clerk's office	262 31	
		618 80
Gas		2,661 87
Water		7,961 84
Discharged prisoners (gratuities)	$1,181 50	
Escaped prisoners	152 50	
Transportation of prisoners	1,018 15	
		2,352 15
Total expenses for the year		$161,709 17

TABLE No. 6—Continued.

Note.

The total amount of expense account for the year is		$161,709 17
Deduct—		
Earnings of manufacturing departments	$48,456 07	
Amount received for keeping United States prisoners	3,083 00	
Amount received for outside labor	923 25	
Amount received for library	82 52	
		52,544 84
Which leaves the net expense for the thirty-seventh fiscal year		$109,164 33
Making the cost per capita for 1,234$\frac{45}{100}$ prisoners, $7 37 per month, or 24$\frac{1}{6}$ cents per day.		

REPORT OF THE CAPTAIN OF THE YARD AND TURNKEY

OF THE

State Prison at San Quentin, California.

YEARS.	Prisoners Received by Order of Court	Pardons Revoked	Escapes Recaptured	Returned from Insane Asylum	Returned Convict Witnesses	Returned without being granted a New Trial	United States Prisoners Received	Returned with Additional Sentence on a New Charge	Returned, Writ of Habeas Corpus having been denied	Returned to await the Decision of the Court on a Writ of Habeas Corpus	Returned from Trial on a New Charge, a Nolle Pros. having been entered
1851	35										
1852	105		3								
1853	163		2								
1854	211		16								
1855	266		25								
1856	258		29								
1857	245		32								
1858	226		33								
1859	220		50								
1860	295		20								
1861	238		9								
1862	190		74								
1863	163		4								
1864	232		2								
1865	235		1								
1866	254	1	2	1							
1867	287										
1868	284	1									
1869	332		1								
1870	375			1							
1871	373			5							
1872	396			1							
1873	206		2								
1874	409		2	2							
1875	542	1	3								
1876	513		4	1							
1877	615	1	3	1							
1878	715										
1879	597	1	6								
1880	531		5	1	12	2	4				
1881	525		2		21		4	2	2	1	
1882	488		1	1	8		11	1			
1883	415				20		4				1
1884	410		3	1	11		5	2	3		
1885	424	1	2		5		11	1			
Totals	11,773	6	336	15	77	2.	39	6	5	1	1

NOTE.—Received 12,266; discharged 11,054. Number of prisoners on hand, July 1, 1885, 1,212.

TABLE No. 1.

Prison Account from 1851 to July 1, 1885.

Returned from Trial on New Charge, Trial having been set for a subsequent date	Received by Transfer from Folsom Prison	Total Received	Discharged per Act and Restored	Discharged per Act	Pardoned by the Governor	Pardoned by the President	Discharged by Expiration of Sentence	Discharged by Commutation of Sentence	Discharged by Order of Court	Escaped	Discharged by Secretary of War	Discharged by Secretary of Navy	Discharged by General Schofield	Discharged by Prison Directors	Died and Killed
		35								1					
		108			2		12			6					1
		165			9		38			8					3
		227			14		87			87					6
		291			29		94		4	28					1
		287			18		103		1	65					5
		277			28		114		4	72					14
		259			27		94		7	23					5
		270			38		119		13	95					17
		315			25		145		7	127					7
		247			34		130		4	35					8
		264			11		153		5	90					15
		167			24		134			24					4
		234	43	55	11		66		3						17
		236	7	134	11		3		10	1					8
		258	25	126	23	8	3		8	4	3	3			8
		287	41	171	37		4		11			6			16
		285	40	194	44		3		7	5		1			9
		333	110	92	22		3		7						10
		376	155	93	32	1	5		14	1	1				10
		378	185	56	37		3	1	16	2					16
		397	160	97	61	1	2	2	15	2					12
		208	82	57	15	1	1	1	20	2					8
		413	185	117	26	2			27			2	1	1	11
		546	214	119	32				35	6		1			18
		518	244	96	66			10	42	3		1			15
		620	164	129	30	2		35	37	10		2			16
		715	214	163	16	1		62	58	2					27
		604	264	124	17	2		53	20	10					29
		555	324	172	19	2		20	1	7					28
		557	336	168	7	3		14	1	7					22
		510	231	171	20	2			2	1					12
		440	232	132	45				1	1					13
2		437	196	136	32	1	1		1	4					14
	3	447	190	96	52	1			1	3					15
2	3	12,266	3,642	2,698	914	27	1,317	198	382	732	4	16	1	1	420

Sent to Insane Asylum	Restored to Citizenship by the Governor	Taken out as Convict Witnesses	Discharged by Order of United States Commissioner	Taken out for a New Trial	Removed to Folsom Prison by Order of the State Board of Prison Directors.*	Suicide	Taken out for Trial on a New Charge	Taken out for Trial on a Charge of Murder	Taken out on a Writ of Probable Cause	Taken out on a Writ of Habeas Corpus	By Executive Release	Taken out for Trial on an Additional Charge	Taken out on a Certificate of Probable Cause	Total Discharged
----	----	----	----	----	----	----	----	----	----	----	----	----	----	1
----	----	----	----	----	----	----	----	----	----	----	----	----	----	21
----	----	----	----	----	----	----	----	----	----	----	----	----	----	58
----	----	----	----	----	----	----	----	----	----	----	----	----	----	194
----	1	----	----	----	----	----	----	----	----	----	----	----	----	157
	4	----	----	----	----	----	----	----	----	----	----	----	----	196
2		----	----	----	----	----	----	----	----	----	----	----	----	234
3	32	----	----	----	----	----	----	----	----	----	----	----	----	191
1	16	----	----	----	----	----	----	----	----	----	----	----	----	299
2	1	----	----	----	----	----	----	----	----	----	----	----	----	314
1	----	----	----	----	----	----	----	----	----	----	----	----	----	212
8	4	----	----	----	----	----	----	----	----	----	----	----	----	286
7	----	----	----	----	----	----	----	----	----	----	----	----	----	193
1	----	----	----	----	----	----	----	----	----	----	----	----	----	196
3	----	----	----	----	----	----	----	----	----	----	----	----	----	177
1	----	----	----	----	----	----	----	----	----	----	----	----	----	212
3	----	----	----	----	----	----	----	----	----	----	----	----	----	289
----	----	----	----	----	----	----	----	----	----	----	----	----	----	303
4	----	----	----	----	----	----	----	----	----	----	----	----	----	248
13	----	----	----	----	----	----	----	----	----	----	----	----	----	325
----	----	----	----	----	----	----	----	----	----	----	----	----	----	316
9	----	----	----	----	----	----	----	----	----	----	----	----	----	361
3	----	----	----	----	----	----	----	----	----	----	----	----	----	190
5	----	----	----	----	----	----	----	----	----	----	----	----	----	377
----	----	----	----	----	----	----	----	----	----	----	----	----	----	425
4	----	----	----	----	----	----	----	----	----	----	----	----	----	481
2	----	----	----	----	----	----	----	----	----	----	----	----	----	427
3	----	----	----	----	----	----	----	----	----	----	----	----	----	546
8	----	----	----	----	----	----	----	----	----	----	----	----	----	527
2	----	14	1	14	----	----	----	----	----	----	----	----	----	604
1	----	20	----	10	253	1	2	1	2	3	1	----	----	852
5	----	8	----	8	60	2	1	----	1	----	----	1	----	525
----	----	22	2	7	----	----	4	----	----	----	----	----	----	459
3	----	11	1	8	50	----	4	1	1	3	1	----	----	468
11	----	5	1	8	2	----	1	----	2	----	----	----	2	390
105	58	80	5	55	365	3	12	2	6	6	2	1	2	11,054

REPORT OF THE CAPTAIN OF THE YARD AND TURNKEY.

San Quentin, Marin County,
July 1, 1886.

Hon. Paul Shirley, Warden California State Prison, San Quentin, Cal.:

Dear Sir: I herewith submit the annual report, in tabular form, for the fiscal year ending June 30, 1886.

During the past year the first attempt has been made to systematically employ the women convicts. The result has been highly satisfactory. The continuation of Table No. 9 shows the amount of clothing, etc., manufactured in the female department during the year. Table No. 10 shows the amounts returned from the various departments assigned me to the Clerk for collection, amounting to $9,917 04, which includes $5,104 70 returned to your office as a charge against other departments of the prison. Table No. 11 shows the number of days' work performed in the various departments of the prison during the year; also the number of convicts assigned to each department at the close of the year. All the other tables are self explanatory.

Very respectfully,

CHARLES AULL,
Captain of the Yard and Turnkey.

TABLE No. 2.

Recapitulation of Received and Discharged Prisoners from July 1, 1885, to July 1, 1886.

MONTHS.	By Commitment	Returned Convict Witnesses	United States Prisoners Received	Received by Transfer from Folsom Prison	Returned for Non-compliance with the Conditions of Pardon	Returned from Insane Asylum	Returned from Trial on an Additional Charge without being Tried	Total Received
1885—July	31		2	1				34
August	31							31
September	55				1			56
October	36	2						38
November	40							40
December	37	1						38
1886—January	33	4						37
February	32	1	1					34
March	37	1	1			2	1	42
April	25			2				27
May	41	4	2					47
June	35		1					36
Totals	433	13	7	3	1	2	1	460

Daily Average Number of Prisoners for each and every Month. Also the Daily Average for the Fiscal Year ending June 30, 1886.

Months.	Number.
1885—July	1,217.7
August	1,210.3
September	1,223.8
October	1,232.7
November	1,237.4
December	1,238.5
1886—January	1,241.8
February	1,239.0
March	1,249.6
April	1,245.3
May	1,236.7
June	1,238.3
Daily average for fiscal year	1.234.4

TABLE No. 2—Continued.

Months.	Discharged per Act and Restored	Discharged per Act	Pardoned by the Governor	Pardoned by the President	Transferred to Folsom Prison by Order of the State Board of Prison Directors	Died	Taken Out by Order of Court for a New Trial	Escaped	Taken Out by Order of Court as Witnesses	Removed to Insane Asylum	Suicide	Taken Out for Trial on an Additional Charge	Discharged from Custody by Order of the Supreme Court	Taken Out on a Writ of Habeas Corpus	Total Discharged
1885—July	17	6	-----	-----	1	3	-----	-----	-----	-----	-----	-----	-----	-----	27
August	21	8	5	1	-----	3	-----	-----	-----	-----	-----	-----	-----	-----	38
September	19	7	5	-----	-----	-----	2	1	-----	-----	-----	-----	-----	-----	34
October	19	12	3	-----	-----	2	-----	-----	2	-----	-----	-----	-----	-----	38
November	24	7	-----	-----	-----	2	-----	-----	-----	-----	-----	-----	-----	-----	33
December	22	10	2	-----	-----	1	-----	1	3	-----	-----	-----	-----	-----	39
1886—January	20	11	1	-----	-----	2	-----	-----	2	3	1	-----	-----	-----	40
February	23	3	2	-----	-----	3	-----	-----	1	-----	-----	1	2	-----	35
March	17	5	2	-----	-----	2	-----	1	1	-----	-----	-----	-----	-----	28
April	26	7	2	-----	2	2	-----	-----	1	-----	-----	-----	-----	1	41
May	15	15	5	1	1	5	-----	-----	3	-----	-----	-----	-----	-----	45
June	16	8	-----	-----	-----	3	-----	-----	-----	-----	-----	-----	-----	-----	27
Totals	239	99	27	2	4	28	2	3	13	3	1	1	2	1	425

TABLE No. 2—Continued.

Recapitulation of Received and Discharged Prisoners from July 1, 1885, to July 1, 1886.

Number of prisoners on hand June 30, 1885	------	1,212
Received from July 1, 1885, to July 1, 1886	------	460
Total	------	1,672
Discharged per Act and restored	239	
Discharged per Act	99	
Pardoned by the Governor	27	
Pardoned by the President	2	
Transferred to Folsom Prison by order of the State Board of Prison Directors	4	
Died	28	
Taken out by order of Court for a new trial	2	
Escaped	3	
Taken out by order of Court as witnesses	13	
Removed to insane asylum	3	
Suicide	1	
Taken out for trial on an additional charge	1	
Discharged from custody by order of the Supreme Court	2	
Taken out on a writ of habeas corpus	1	
		425
Number of prisoners on hand June 30, 1886	------	1,247
Increase for the fiscal year	------	35

TABLE No. 3.

Nativity of Prisoners.

NATIVITY.	Number.	Per Cent.
United States and Territories.		
Alabama	3	.24
Arkansas	7	.56
Arizona Territory	2	.16
California	197	15.90
Connecticut	5	.40
Georgia	2	.16
Illinois	30	2.40
Indiana	12	1.00
Iowa	9	.72
Kansas	5	.40
Kentucky	15	1.20
Louisiana	6	.48
Maine	13	1.04
Maryland	8	.64
Michigan	10	.80
Massachusetts	45	3.60
Missouri	51	4.08
Minnesota	1	.08
New Hampshire	2	.16
New York	140	11.16
New Jersey	4	.32
North Carolina	3	.24
Nebraska	1	.08
Ohio	21	1.68
Oregon	8	.64
Pennsylvania	29	2.32
Rhode Island	3	.24
South Carolina	2	.16
Tennessee	3	.24
Texas	4	.32
Vermont	3	.24
Virginia	3	.24
West Virginia	2	.16
Wisconsin	6	.48
New Mexico	3	.24
District of Columbia	2	.16
Totals	660	52.94

NATIVITY.	Number.	Per Cent.
Foreign.		
Austria	7	.56
Australia	12	1.00
Belgium	1	.08
China	137	10.98
Canada	48	3.90
Chili	7	.56
Denmark	4	.32
England	52	4.16
France	14	1.12
Finland	4	.32
Germany	60	4.80
Ireland	87	6.92
Italy	8	.64
Mexico	78	6.26
Nova Scotia	9	.72
New Brunswick	2	.16
Peru	1	.08
Portugal	4	.32
Russia	3	.24
Spain	3	.24
Sweden and Norway	15	1.20
Switzerland	5	.40
Scotland	16	1.28
Sandwich Islands	1	.08
Wales	4	.32
West Indies	3	.24
At sea	2	.16
Totals	587	47.06
RECAPITULATION.		
United States and Territories	660	52.94
Foreign	587	47.06
Totals	1,247	100.00

TABLE No. 4.

Classification of Crime.

CRIME.	Number.	CRIME.	Number.
Arson	4	Forgery	20
Arson, first degree	5	Felony	59
Arson, second degree	9	Grand larceny	172
Arson and burglary	2	Grand larceny and prior conviction	20
Attempt to commit arson	3	Grand larceny and assault to murder	2
Attempt to kidnap	3		
Attempt at grand larceny	7	Incest	1
Assault to murder	62	Jail breaking	2
Assault to rape	13	Larceny, first degree	2
Assault to rob	40	Murder	6
Assault to rob and grand larceny	5	Murder, first degree	84
Assault to do great bodily injury	6	Murder, second degree	80
Assault with deadly weapon	42	Manslaughter	50
Attempt at burglary	30	Perjury	10
Burglary	30	Petit larceny and prior conviction	42
Burglary, first degree	135	Rape	9
Burglary, second degree	129	Robbery	55
Burglary and grand larceny	15	Robbery and arson	2
Burglary and prior conviction	60	Robbery and assault to murder	2
Bigamy	3	Robbery and assault to rob	1
Buggery	3		
Counterfeiting	7	Total	1,247
Embezzlement	15		

TABLE No. 5.

Terms of Imprisonment.

TERM.	Number.	TERM.	Number.
Six months	2	Twelve years	19
One year	50	Thirteen years	12
One and one quarter years	5	Fourteen years	23
One and one half years	25	Fifteen years	52
One and three fourths years	2	Sixteen years	4
Two years	105	Seventeen years	5
Two and one half years	20	Eighteen years	6
Three years	91	Twenty years	29
Three and one half years	15	Twenty-one years	1
Four years	78	Twenty-two years	4
Four and one half years	10	Twenty-four years	2
Five years	193	Twenty-five years	13
Five and one half years	9	Twenty-eight years	3
Six years	50	Thirty years	6
Six and one half years	41	Thirty-five years	3
Seven years	15	Thirty-six years	1
Seven and one half years	48	Forty years	2
Eight years	15	Forty-five years	1
Eight and one half years	7	Fifty years	1
Nine years	15	Life	126
Ten years	128		
Eleven years	10	Total	1,247

TABLE No. 6.

Ages of Prisoners.

Age.	Number.	Age.	Number.
Twelve years	1	Forty-two years	43
Thirteen years	1	Forty-three years	28
Fourteen years	5	Forty-four years	20
Fifteen years	5	Forty-five years	18
Sixteen years	10	Forty-six years	15
Seventeen years	27	Forty-seven years	10
Eighteen years	25	Forty-eight years	10
Nineteen years	47	Forty-nine years	12
Twenty years	39	Fifty years	10
Twenty-one years	32	Fifty-one years	8
Twenty-two years	30	Fifty-two years	9
Twenty-three years	45	Fifty-three years	11
Twenty-four years	32	Fifty-four years	7
Twenty-five years	33	Fifty-five years	6
Twenty-six years	37	Fifty-six years	5
Twenty-seven years	45	Fifty-seven years	4
Twenty-eight years	29	Fifty-eight years	6
Twenty-nine years	50	Fifty-nine years	4
Thirty years	45	Sixty years	5
Thirty-one years	62	Sixty-two years	2
Thirty-two years	43	Sixty-three years	1
Thirty-three years	37	Sixty-four years	1
Thirty-four years	30	Sixty-five years	1
Thirty-five years	59	Sixty-nine years	1
Thirty-six years	42	Seventy-four years	1
Thirty-seven years	41	Seventy-seven years	1
Thirty-eight years	43	Eighty years	1
Thirty-nine years	30		
Forty years	27	Total	1,247
Forty-one years	55		

TABLE No. 6—Continued.

Educational Abilities of Prisoners.

Read and write	832
Read and cannot write	64
Neither read nor write	351
Total	1,247

TABLE No. 7.

Number of Prisoners from each County.

County.	Number.	Per Cent.	County.	Number.	Per Cent.
Alameda	70	5.62	San Benito	9	.72
Amador	9	.72	San Bernardino	40	3.22
Butte	23	1.84	San Diego	32	2.56
Calaveras	13	1.04	San Francisco	368	29.46
Colusa	5	.40	San Joaquin	55	4.42
Contra Costa	23	1.84	San Luis Obispo	10	.80
Del Norte	8	.64	San Mateo	12	1.00
El Dorado	3	.24	Santa Barbara	16	1.28
Fresno	25	2.00	Santa Clara	50	4.02
Humboldt	13	1.04	Santa Cruz	11	.88
Inyo	6	.48	Shasta	24	1.92
Kern	26	2.08	Sierra	13	1.04
Lake	9	.72	Siskiyou	8	.64
Los Angeles	118	9.46	Solano	12	1.00
Marin	8	.64	Sonoma	24	1.92
Mendocino	11	.88	Stanislaus	15	1.20
Mariposa	5	.40	Tehama	10	.80
Merced	13	1.04	Trinity	6	.48
Mono	1	.08	Tulare	20	1.60
Monterey	22	1.76	Tuolumne	14	1.12
Modoc	4	.32	Ventura	12	1.00
Nevada	15	1.20	Yolo	8	.64
Napa	10	.80	Yuba	6	.48
Placer	16	1.28			
Plumas	3	.24	Totals	1,247	100.00
Sacramento	13	1.04			

Table No. 7—Continued.

Number of Terms.

Prisoners serving their first term	1,005
Prisoners serving their second term	137
Prisoners serving their third term	63
Prisoners serving their fourth term	27
Prisoners serving their fifth term	8
Prisoners serving their sixth term	5
Prisoners serving their seventh term	1
Prisoners serving their eighth term	1
Total	1,247

TABLE No. 8.

Occupation of Prisoners when Received.

Occupation.	Number.	Occupation.	Number.
Baker	10	Laborer	403
Bookkeeper	5	Lawyer	2
Barkeeper	8	Molder	3
Barber	20	Miner	30
Blacksmith	15	Machinist	12
Butcher	15	Mattressmaker	1
Brick mason	5	Marble cutter	1
Broommaker	1	Millwright	1
Boilermaker	1	Musician	1
Brakesman	6	Printer	16
Bolt cutter	2	Plumber	3
Buttonmaker	1	Painter	19
Boxmaker	2	Physician	2
Blockmaker	1	Peddler	2
Cook	87	Porter	1
Carver	4	Photographer	2
Calker	1	Photograph painter	1
Carpenter	32	Polisher	1
Cigarmaker	25	Railroad employé	6
Clerk	15	Roller	1
Cabinetmaker	9	Ship carpenter	5
Cooper	3	Sashmaker	3
Chairmaker	2	Sailor	31
Coach driver	1	Servant	1
Carriage maker	1	Stonecutter	1
Cracker baker	1	Salesman	1
Compositor	1	Shoemaker	20
Chair bottomer	1	Sailmaker	1
Civil and mechanical engineer	1	Surveyor	1
Domestic	20	Schoolmaster	1
Dairyman	3	Steward	2
Druggist	2	Stevedore	4
Dressmaker	1	Sawyer	1
Driller	1	Spinner	1
Engineer	20	Sticker and planer	1
Electrician	1	Stove molder	1
Farmer	62	Stage driver	1
Fisherman	5	Turner	2
Fireman	7	Teamster	35
Furniture polisher	1	Tailor	10
Foundryman	4	Telegraph operator	1
Filer and sawyer	1	Tinsmith	4
Gardener	8	Tanner	2
Gasfitter	2	Tobacconist	1
Harnessmaker	15	Upholsterer	2
Hostler	20	Vaquero	42
Herder	4	Violinist	1
Horseshoer	3	Washman	73
Hatter	2	Weaver	1
Horse breaker	1	Wheelwright	1
Housewife	1	Waiter	15
Housekeeper	3	Washerwoman	1
Hackman	1		
Ironer	7	Total	1,247
Iron worker	1		

TABLE No. 9.

Statement of Clothing, etc., issued from July 1, 1885, to July 1, 1886.

Date.	Woolen Pants	Woolen Shirts	Hickory Shirts	White Shirts and Collars	Convict Shoes	Citizen Shoes	Hats	Blankets	Beds	Boots and Shoes to order	Repairs	Flour Sacks	Brooms	Women's Shoes	Women's Dress Goods and Trimmings, yards
1885—July	143	130	28	2	103	36	83	50	77	9	32	210	84	3	36
August	248	224	33	1	137	47	88	41	71	8	43	180	71		72
September	261	246	26	6	132	40	135	83	93	5	30	220	79		
October	217	199	24	2	146	45	94	49	69	7	45	202	74	21	84
November	209	202	13	1	174	48	124	63	66	10	39	194	81		84
December	187	162	20	2	140	42	125	53	75	10	48	157	72	1	48
1886—January	179	162	21		132	33	108	76	66	13	47	214	84	1	72
February	233	218	12		126	27	105	36	80	6	33	160	71	2	74
March	202	183	11		137	36	112	84	77	8	58	229	85		15
April	195	178	27		135	49	80	47	78	12	45	189	71		67
May	186	167	22		135	47	104	59	86	2	45	179	90		60
June	206	191			131	38	57	57	89		41	222	76		60
Totals	2,466	2,262	237	14	1,628	488	1,215	698	927	90	506	2,356	938	28	672

Date.	Muslin, yards	Sheets	Pillow Cases	Flannel, yards	Colored Shirts	White Ducking, yards	Ladies' Hose, pairs	Lamp Chimneys	Undershirts	Drawers	Socks	Issued to Prisoners upon their Discharge from the Prison.		
												Coats.	Vests.	Pants.
1885—July	45	8	8	30		25	6		47	48	46	9	5	8
August	90	6	6	64			12		57	55	72	20	14	20
September	14	9					26		52	52	85	19	16	17
October	105	3	4	70			18		50	49	110	18	15	17
November	110			60					53	51	135	18	23	25
December	65	6	4	51			6		63	57	47	17	9	14
1886—January	90	9	6	60			16	144	67	62	131	20	15	18
February	75	2	2	50			12	71	48	54	75	6	9	8
March	15	6	3	10	5		2	48	59	58	69	8	10	9
April	75			30	13		10	25	72	69	113	12	12	16
May	75	11	1	40	17		10	77	67	66	132	18	14	21
June	60	2	2	40	4		8	47	11	8	81	13	11	14
Totals	819	62	36	505	39	25	126	412	646	629	1,096	178	153	187

TABLE No. 9—Continued.

Clothing, etc., Manufactured in Female Department.

Woolen pants	2,187
Woolen shirts	2,187
Hickory shirts	178
Undershirts	1,298
Drawers	1,276
Table cloths	92
Sheets	202
Pillow cases	246
Table napkins	357
Bags	988
Colored shirts	45

TABLE No. 10.

Amount Charged Employés and Departments for Work done and Material furnished, and Returned to Clerk for collection and proper entry.

Date.	State Mess	State Laundry	State Shoe Shop	State Tailor Shop	State Upholsterer	State Tin Shop	State Blacksmith Shop	State Wheelwright Shop	State Bakery	Wood Account	Lime Account	Labor Account	Total.
1885—July	$69 50	$123 98	$41 80	$189 92	$1 50	$62 71	$131 12	$131 75	$225 44	$2 25			$1,282 97
August	74 00	63 98	27 00	95 42	1 50	57 10	149 90	43 25	200 13	4 50			716 78
September	125 00	80 92	28 55	57 55		47 22	137 45	27 00	189 07	6 00			698 76
October	81.00	84 90	32 25	281 25		98 07	220 00	3 45	212 02	6 00	$9 50	$22 50	1,050 94
November	83 75	75 42	27 95	84 93	8 00	89 19	132 70	43 25	211 54			3 55	760 28
December	66 00	94 40	44 20	281 50		66 47	120 40	87 50	199 16			13 10	972 73
1886—January	60 75	77 87	41 35	322 04	42 60	132 71	135 75	18 75	209 54			5 00	1,046 36
February	56 00	79 22	19 90	100 80	7 85	43 05	143 57	20 50	160 44			1 00	632 33
March	57 25	92 42	37 75	146 44	10 85	81 91	120 75	31 75	197 33	2 25			778 70
April	59 00	76 52	28 00	93 80	42 60	57 88	115 00	15 20	138 10	3 75			629 85
May	53 00	92 45	31 20	80 25		58 45	139 00	114 00	138 20	3 00	3 95		713 50
June	83 00	106 50	6 15	32 91	7 50	57 63	153 10	44 75	136 30	6 00			633 84
Totals	$868 25	$1,048 58	$369 10	$2,066 81	$122 40	$852 39	$1,698 74	$581 15	$2,217 27	$33 75	$13 45	$45 15	$9,917 04

TABLE No. 11.

Employment and Labor Report for the Fiscal Year ending June 30, 1886.

Nature of Labor.	Days Labor.
Chair department	26,568
Door department	49,300½
Jute department	90,911½
Tannery department	2,679
Harness department	4,468
Foundry department	3,296
Engineer department	5,034
General kitchen	17,992
Outside kitchen	5,498
Hospital kitchen	2,320
Laundry	9,476½
House servants	13,342
Scavengers	4,042
Sweepers	11,161
Whitewashers	1,491
Tailor shop	3,365
Shoe shop	3,884
Cooper shop	308
Paint shop	1,191
Tin shop	1,136
Carpenter shop	1,323
Barber shop	3,409
Vegetable gardens	2,394
Flower gardens	2,312
Chicken ranch	390
Hog ranch	520
Brickmason	51
Dairy	1,031
Plumber shop	660½
Captain Guards' department	2,539
Tank tender	304
Captain Yard's office	1,128
Turnkey's office	1,406
Clerk's office	730
Warden's office	1,317
Commissary department	3,152½
Carried forward	280,130½
Brought forward	280,130½
Cell and room tenders	7,700
Blacksmith shop	1,203
Stables, etc.	7,993
Coal yard	319
Upholsterer shop	656
Belt shop	304
Stevedore	8,178
Road gang and rock pile	12,314
Library	1,324
Hospital nurses, etc.	2,002
Brickyard	6,581½
Gate tenders	3,820
Dentist	33
Lamplighter	365
Female department	7,380
Lumbermen "door dep't"	1,693½
Elevators	431
Wheelwright shop	326
Locksmith	304
Carriage shop	763
Block pile, etc.	1,404
Permanent improvements	4,470½
General repairs	196
Physician's office	8
Total days labor for year	349,899

LOST LABOR.

Patients in hospital	5,621
Cripples and imbeciles	12,009½
Unassigned	5,546½
Daily excuses, dungeon, etc.	18,549½
Total days lost labor for year	41,726½

TABLE No. 11—Continued.

Showing the number of Convicts assigned to various Departments, etc., of the Prison, at the close of the Fiscal Year ending June 30, 1886.

DEPARTMENTS.	Number.	DEPARTMENTS.	Number.
Jute	409	Convict dining room and kitchen	54
Door and lumber	150	Hospital kitchen	7
Chair	93	Wheelwrights	3
Tannery	3	Lamplighter	1
Harness	6	Locksmith	1
Foundry	17	Gate tenders	11
Engineer's department	13	Door tenders	14
Barber shop	10	Cell and room tenders	20
Carpenters	3	Flower and vegetable gardens	14
Tinshop	3	Inside scavengers	6
Plumbers	3	Outside scavengers	3
Painters	4	Bath tank	1
Coopers	1	Patients in hospital	10
Shoemakers	14	Cripples and imbeciles	46
Tailors	11	Hospital nurses, etc.	5
Warden's office	4	Library	4
State clerk	2	Beltmakers	1
Captain of the Yard's office	3	Upholsterers	2
Turnkey's office	4	Coalyard	1
Physicians	1	Brickyard	37
Stables and teamsters	23	General laborers	22
Captain of the Guard	7	Stock and chicken yard	6
Blacksmiths	4	Whitewashers	6
House servants	36	Females	27
Commissary	9	Block pile	4
State laundries	30	Rock pile	9
Yard sweepers	5	Unassigned	27
Permanent improvements	8		
Shop sweepers	15	Total	1,247
Officers' and guards' dining quarters	14		

TABLE No. 12.

Showing the Operation of the Credit System under Section 1590 of the Penal Code.

Sentence.		Credits.	Term with Credit.			Sentence.		Credits.	Term with Credit.			Sentence.		Credits.	Term with Credit.			Sentence.		Credits.	Term with Credit.		
Years	Months	Months	Years	Months	Days	Years	Months	Months	Years	Months	Days	Years	Months	Months	Years	Months	Days	Years	Months	Months	Years	Months	Days
------	6	1	------	5	------	13	-----	57	8	3	------	25	6	119½	15	6	15	38	----	182	22	10	------
1	------	2	------	10	------	13	6	59½	8	6	15	26	-----	122	15	10	------	38	6	184½	23	1	15
1	6	3	1	3	------	14	-----	62	8	10	------	26	6	124½	16	1	15	39	-----	187	23	5	------
2	------	4	1	8	------	14	6	64½	9	1	15	27	----	127	16	5	------	39	6	189½	23	8	15
2	6	6	2	------	------	15	-----	67	9	5	------	27	6	129½	16	8	15	40	-----	192	24	------	------
3	------	8	2	4	------	15	6	69½	9	8	15	28	-----	132	17	------	------	40	6	194½	24	3	15
3	6	10	2	8	------	16	-----	72	10	------	------	28	6	134½	17	3	15	41	-----	197	24	7	------
4	------	12	3	------	------	16	6	74½	10	3	15	29	-----	137	17	7	------	41	6	199½	24	10	15
4	6	14½	3	3	15	17	-----	77	10	7	------	29	6	139½	17	10	15	42	-----	202	25	2	------
5	------	17	3	7	------	17	6	79½	10	10	15	30	-----	142	18	2	------	42	6	204½	25	5	15
5	6	19½	3	10	15	18	-----	82	11	2	------	30	6	144½	18	5	15	43	-----	207	25	9	------
6	------	22	4	2	------	18	6	84½	11	5	15	31	-----	147	18	9	------	43	6	209½	26	------	15
6	6	24½	4	5	15	19	-----	87	11	9	------	31	6	149½	19	------	15	44	-----	212	26	4	------
7	------	27	4	9	------	19	6	89½	12	------	15	32	-----	152	19	4	------	44	6	214½	26	7	15
7	6	29½	5	------	15	20	-----	92	12	4	------	32	6	154½	19	7	15	45	-----	217	26	11	------
8	------	32	5	4	------	20	6	94½	12	7	15	33	-----	157	19	11	------	45	6	219½	27	2	15
8	6	34½	5	7	15	21	-----	97	12	11	------	33	6	159½	20	2	15	46	-----	222	27	6	------
9	------	37	5	11	------	21	6	99½	13	2	15	34	-----	162	20	6	------	46	6	224½	27	9	15
9	6	39½	6	2	15	22	-----	102	13	6	------	34	6	164½	20	9	15	47	---	227	28	1	------
10	------	42	6	6	------	22	6	104½	13	9	15	35	----	167	21	1	------	47	6	229½	28	4	15
10	6	44½	6	9	15	23	-----	107	14	1	------	35	6	169½	21	4	15	48	-----	232	28	8	------
11	------	47	7	1	------	23	6	109½	14	4	15	36	-----	172	21	8	------	48	6	234½	28	11	15
11	6	49½	7	4	15	24	-----	112	14	8	------	36	6	174½	21	11	15	49	-----	237	29	3	------
12	------	52	7	8	------	24	6	114½	14	11	15	37	-----	177	22	3	------	49	6	239½	29	6	15
12	6	54½	7	11	15	25	-----	117	15	3	------	37	6	179½	22	6	15	50	-----	242	29	10	------

REPORT OF THE PHYSICIAN

OF THE

State Prison at San Quentin, California.

PHYSICIAN'S REPORT.

California State Prison,
San Quentin, Cal., July 2, 1886.

Hon. Paul Shirley, *Warden:*

Sir: It again becomes my duty to report to you the condition and operation of the medical department of this prison. During the fiscal year just closed we have had about the usual amount of sickness incident to an institution of this character, the greater number of cases of mortality resulting from that dread disease consumption. Out of a total of twenty-nine deaths, eighteen died of pulmonary disease, one of syphilis, three of scrofula, one of epilepsy, one of cancer of the face, one of gunshot wound in the head, received about one year before his commitment to this institution, one suicide by hanging. I am pleased to report that with our increased and improved hospital facilities, we are now able to give the sick as good care as they could receive in any hospital that I have visited in this State. Our new system of sewerage is all that could be desired, and reflects great credit on the projectors. With the completion of the building designed for the safe keeping of the insane, I think the medical department of this prison will compare favorably with any penal institution in this country.

In concluding my remarks I feel it incumbent to call your special attention to that terrible vice, the use of opium; fully one half of the young men committed from the cities and larger towns are addicted to the use of opium. I would respectfully urge you and all others interested in the reformation of criminals, to devise some law and present it to our next Legislature for enactment that would restrict the sale and use of opium.

Thanking you for your prompt coöperation in everything that pertains to the health of the prisoners,

I am, sir, very respectfully, your obedient servant,

THOS. B. EAGLE, M.D.

PHYSICIAN'S REPORT.

DISEASES.	First Quarter.	Second Quarter.	Third Quarter.	Fourth Quarter.	Totals.
	Number.	Number.	Number.	Number.	
Aneurism	18	16	6	10	50
Asthma	30	33	22	23	108
Abscess	18	17	13	15	63
Ataxia, nervous				1	1
Amputation		1		1	2
Bronchitis	34	40	16	20	110
Boils	33	37	37	24	131
Burns	11	8	16	20	55
Constipation	150	160	170	160	640
Catarrh	66	78	88	79	311
Carbuncle	8	11	5	4	28
Diarrhœa	140	135	119	159	553
Diabetes	35	34	7	10	86
Dyspepsia	50	58	62	62	232
Dysentery	27	31	12	12	82
Dislocation	6		2	4	12
Eczema	29	24	29	22	104
Erysipelas	15	8	5	3	31
Epilepsia	3				3
Emphysema	1				1
Fever, intermittent	46	40	18	18	122
Fever, remittent	30	28	27	16	101
Fever, malarial	15	19	14	9	57
Fracture	12	8	25	11	56
Fistula		1	3	13	17
Gonorrhœa	26	23	4	10	73
Hernia	28	17	33	39	117
Hæmoptysis	24	29	18	18	89
Insanity, partial	85	111	110	104	410
Indigestion	164	157	161	157	636
Lumbago	1		2		3
Neuralgia	67	42	34	46	189
Ophthalmia	15	13	12	13	53
Parotiditis	16	18	8	7	49
Paralysis		1		1	2
Phthisis, pulmonary	28	33	50	40	151
Pneumonia			1	1	2
Rheumatism	167	168	166	128	629
Syphilis, primary	15	17	3	5	40
Syphilis, secondary	20	20	18	20	78
Stricture	2		3		5
Scrofula		13	29	41	83
Scalds	8	5		1	14
Tonsillitis	31	31	13	20	95
Urticaria	23	27	5	8	63
Wounds, lacerated	53	52	31	40	176
Wounds, incised	26	30	19	15	90
Wounds, contused	5	5	2	6	18
Unclassified					6,135
Total					12,054

Physician's Report—Continued.

	First Quarter.	Second Quarter.	Third Quarter.	Fourth Quarter.	Totals.
	Number.	Number.	Number.	Number.	
Calls on physician	3,151	3,005	2,862	3,036	12,054
Daily average	35	33	32	34	
Sick visited in cells	105	106	95	102	408
Daily average	1	1	1	1	
Men excused from labor	1,429	1,430	1,033	1,166	5,058
Daily average	16	15	11	12	
Patients admitted	28	25	32	27	112
Patients discharged	24	17	19	17	77
Patients in hospital					21
Died in hospital	4	4	7	9	24
Died outside	2	1	1	1	5

Name.	Nativity.	Disease.	Date of Death.
Harrington, L.	American	Syphilis	July 6, 1885.
Martinez, F.	Mexican	Hemorrhage	July 7, 1885.
Jarra, L.	Mexican	Hemorrhage	July 21, 1885.
Gonzales, E.	Mexican	Phthisis pulmonalis	August 12, 1885.
Soto, M.	Mexican	Phthisis pulmonalis	August 18, 1885.
Indian Bill	Indian	Scrofula	August 1, 1885.
Smith, John	New York	Epilepsy	October 8, 1885.
Alviso, I.	Mexican	Carcinoma	October 25, 1885.
Johnson, F.	American	Pulmo., abscess	November 17, 1885.
Dwarte, L.	Mexican	Phthisis pulmonalis	November 30, 1885.
Ah Sing	China	Phthisis pulmonalis	December 17, 1885.
Martinez, C.	Mexican	Phthisis pulmonalis	January 13, 1886.
Howlet, B.	American	Inflammation of bowels	January 18, 1886.
Ah Ki	China	Suicide	January 23, 1886.
McCollough, R.	American	Phthisis pulmonalis	February 6, 1886.
Blanchard, R.	American	Phthisis pulmonalis	February 20, 1886.
Butler, T.	Oregon	Phthisis pulmonalis	February 28, 1886.
Phelps, A.	American	Phthisis pulmonalis	March 19, 1886.
Rodrigues, J.	Mexican	Phthisis pulmonalis	March 25, 1886.
O'Neil, J.	Massachusetts	Phthisis pulmonalis	April 1, 1886.
Chin Ah Young	China	Phthisis pulmonalis	April 10, 1886.
Lane, J.	Indian	Scrofula	May 3, 1886.
Ramos, A.	Mexican	Phthisis pulmonalis	May 7, 1886.
Jewel, E.	American	Emphysema	May 13, 1886.
Romain, C.	Frenchman	Compression of brain	May 18, 1886.
Valenzuela, M.	Mexican	Scrofula	May 8, 1886.
Jarrette, F.	American	Phthisis pulmonalis	June 9, 1886.
Chil-Chil	Indian	Phthisis pulmonalis	June 22, 1886.
Johns, Walter	American	Ataxia nerv.	June 22, 1886.

Total number of deaths .... 29.

REPORT OF THE CHAPLAIN

OF THE

State Prison at San Quentin, California.

CHAPLAIN'S REPORT.

Honorable Paul Shirley, *Warden:*

Dear Sir: Herewith I respectfully submit my report of the several departments under my charge, for the year ending June 30, 1886.

BOYS' DEPARTMENT.

When I made my last report, there were seventy in the prison under twenty years of age. Thirty-eight have been added during the year, two have died, and twenty-six discharged by pardon or the expiration of their sentence, leaving eighty now here, being a net increase of ten. Most of these have been engaged in the jute factory during the year. When it was closed for several weeks during the Winter, they were in the Library, and were required to pursue regular studies every day, under the charge of one of my assistants in the Library, who is an old, experienced, and competent teacher. But with most of them it was literally "compulsory education," for they seemed to care for everything else rather than to obtain useful learning. There were, I am happy to say, some exceptions, and for these I could wish that their opportunities for studying the useful branches of education could be increased. I can in this only reiterate the suggestion made in former reports.

Though it may be called a "twice told tale," I trust you will pardon me for again pleading for the establishment, by the State, of a reformatory for these juvenile delinquents. Though, as I have said before, imprisonment here is far preferable, so far as the true welfare of the boys is concerned, to incarceration in the county jails, or either of the two penal institutions in San Francisco, yet it is apparent, on a moment's consideration, that the State Prison is no place for young offenders, if permanent reformation is a desirable object. The stigma which the public will attach to one who has been here, will follow the poor boy or man through life; and so far as the boys are concerned, I have more hope for reformation in the men than in them. I have tried my best, in the addresses I have made in several of our principal cities, to correct this opinion and action of the public, and trust I have been instrumental in changing the opinion of some. But the main fact of almost universality of belief and action still stares us in the face. Could we have in this State some such institution as the Elmira Reformatory, or its kindred reform schools in Ohio, and I believe in Michigan also, we might expect most salutary results. From one fourth to one half leave those places thoroughly reformed, and become good and useful citizens. Is not that a "consummation devoutly to be wished for?" And can our Legislature hesitate much longer with impunity? During the last four years, notwithstanding the large percentage of discharges, the number present has increased from forty to eighty, *or one hundred per cent.* How much longer can we be indifferent to conclusions resulting from such facts? A few more one hundred per cent increases, and a new State Prison must be built for the accommodation of juvenile criminals alone. I trust that some member of the next Legislature will take this matter earnestly in hand, and that ere another fiscal year closes, at least a beginning may be made in this most desirable reform.

LIBRARY.

I give the statistics of this most important appendage to our prison. At the close of last year, there were 4,859 volumes on the shelves. The donations have been few, but an addition of nearly 250 volumes was made by purchase from the Mercantile Library in New York, the Board of Directors having made an appropriation of $100 for that purpose. But as an offset to this increase, 175 were condemned as being too dilapidated for either use or repair. The net increase, therefore, has only been 186, and the present number of volumes is 5,045. Of these, 3,593 belong to the Public and 1,452 to the Catholic division. The issues during the year foot up 15,228, or an average of 1,267 each month. The use of the library is well appreciated by a large number of the prisoners, and I am sorry for their sakes, that we are so dependent upon donations only for its maintenance and increase. I again renew the former recommendations that an appropriation of $500 or even $250 annually by the Legislature, for the increase of the library, would be of great value, in adding to the interest felt in its use. I know of no way in which a small sum of money could be more judiciously disbursed.

Books can be drawn on any day of the week, but on Tuesday and Saturday afternoons are seen the largest crowd of applicants.

DONATIONS.

These have been quite generous and always acceptable. We have again been indebted to Rev. James Matthews, of Orange, Illinois, Rev. James Woodworth, and several other kind friends in San Francisco and elsewhere, for many thousands of papers and magazines. Acknowledgments and thanks were returned whenever the giver was known. The footing up is as follows:

Papers, religious	4,966
Papers, miscellaneous	2,261
Magazines	943
Bibles, school books, etc.	421

BINDERY.

The work here has, as usual, been under the charge of one of the prisoners. A change was made last November, when the then binder left the prison. It is due to the present occupant to say, that his work has been as good as that of his predecessor, and equally satisfactory. He has the assistance of another prisoner when required. What has been done is here enumerated:

Books rebound	245
Books repaired	108
Newspapers bound in parcels	127
Copy books made	660
Tablets and tags made for offices	1,501
Blotting pads made	2
Blank books made	2
Monthly reports bound	37

EMPLOYÉS.

There are two assistant librarians, one book-binder and assistant, and janitor, all prisoners.

RELIGIOUS SERVICES.

These are held as before, every Sunday morning, in the library or chapel, one hour after the opening of the prison, varying from seven o'clock and thirty minutes in the Summer, to eight o'clock and thirty minutes in the Winter. On the second Sunday in each month Rev. E. Gallian, S. J., celebrates mass and preaches. On the third Sunday Rev. James Woodworth, of San Francisco, preaches, as he has regularly done for some twenty years. The remaining Sundays are either occupied by myself, or by some clergyman specially invited. Though no enthusiast, yet I can truthfully say that I believe these services have been productive of much good in helping to maintain the discipline of the prison, and strengthening the good resolutions of those—not a few—who have resolved to lead a different life. I only wish I was able to make them more efficient still. The music, both vocal and instrumental, is furnished by the prisoners, and adds much to the attractiveness of the services.

On the first of August last I commenced semi-monthly services in the women's department. They have been regularly held on the first and third Sundays in each month, and are attended by about one half of those in prison. Those who attend seem much interested and are very attentive. I trust that some permanent good may result.

I have attended twenty-nine funerals during the year, which is slightly above the average.

Very respectfully, your obedient servant,

WM. H. HILL, Chaplain.

San Quentin, July 1, 1886.

REPORT OF THE WARDEN

OF THE

State Prison at Folsom, California.

WARDEN'S REPORT.

Warden's Office,
State Prison at Folsom, Cal., July 1, 1886.

To the honorable State Board of Prison Directors:

Gentlemen: I have the honor to submit to you my report for the fiscal year ending June 30, 1886.

The appropriation for the support of the prisoners for the last fiscal year was made on the basis of the year preceding. Since that time, however, the number of prisoners at the close of the fiscal year was by one hundred and thirty-three greater than it was at its commencement. This cause, joined to the fact that the income from the sale of products did not equal the amount estimated by the Legislature, rendered a deficiency inevitable.

The money necessary to carry on the management of the prison was obtained from the National Bank of D. O. Mills & Co., of Sacramento, at the rate of seven per cent per annum. To meet this indebtedness it will be necessary to ask for an appropriation by the Legislature to cover the principal and the interest to May, 1887—about $12,900. It will be necessary to ask for an additional appropriation for the support of the prison for the thirty-eighth fiscal year, as it will be impossible to meet each month's expenses with one twelfth of the sum already appropriated. I estimate the probable deficiency at about $1,000 per month, making $12,000.

As the majority of the prisoners are serving long sentences, and as there is no falling off in the number of commitments, there will be a larger population to support during the next two years, and as there probably will be no revenue from the labor of the prisoners, sufficient in amount to materially decrease the expenses, and as the amount that may be earned is a matter of great uncertainty, it will require an appropriation of $120,000 for each of the fiscal years—thirty-ninth and fortieth.

This does not imply that the prisoners will be idle for even a single day, as they can all—aside from productive labor—be occupied in building an addition to the cell building and in the construction of other improvements, such as walls, sewers, and roads; also, in gardening, farming, wood chopping, and in the manufacture of clothing and shoes for the use of the prisoners. In my judgment, no prisoner should be permitted to be idle, except as a punishment. It does not require very great ingenuity to invent work for prisoners when there is a stone quarry on the premises, and I do not anticipate any difficulty in keeping all the prisoners busily employed. However, in addition to the resources mentioned, there is also the possibility that the Natoma Water and Mining Company, through its successor, the Folsom Water Power Company, will call for the labor of the prisoners to aid in the completion of the canal, as the decision in the Superior Court is adverse to the State. If the case should be decided against the State, in the Supreme Court, the probability of a demand for the payment of the number of days' labor must be considered.

It is not too soon to look forward to the time when most of the improvements will be completed, and when it may be necessary to find satisfactory employment for the prisoners who cannot be used as mechanics. The purchase of an additional tract of land would furnish that employment in raising the grain and vegetables needed for the prison, thus lowering the cost of maintaining the prisoners without bringing their labor in competition with free labor by the sale of the products. An old-time prisoner commended my efforts to establish a small farm among the rocks surrounding the prison, by saying that the work would produce better results than merely raising a crop—that the reformation of a criminal could best be accomplished by teaching him how to maintain himself by honest labor, "and," said this philosopher, "there is no better way of giving that lesson than by showing him that with his own hands and a few simple tools he can get his living from the soil; he does not need to run the risk of being shunned by those who suspect him of being an ex-convict, or to have the humiliation of a discharge by his employer when the exposure of his history is made, for he can go to some spot that is open to him for settlement, clear a piece of land, and get enough from the sale of the wood to carry him through till he can realize on the little patch he has planted, and so go on, with better prospects for the next year. Many a man would do this if he knew how, and could command the patience to wait, but here he can see it demonstrated—the piece of chaparral that he helped to reclaim is now growing a crop of wheat or barley, or is bearing grapevines, or is covered with vegetables, and he can easily reason that the same results will follow his efforts when working for himself. Almost any prisoner will take delight in the work by which he creates something, and once you get a man fascinated with work on a farm he has partly taken himself out of the criminal class. Let him discover that he can be his own employer and make an honest living, and he will be apt to complete his reformation." If no other good result should follow the employment of some of the prisoners in the occupation of farming, at least they will help to diminish the cost of their support.

I regret to have to announce the demise of two officers of the prison during the year just closed—Professor James Gauley, and Captain R. S. Bugg. Professor Gauley was highly esteemed by officers and prisoners, and by all who knew him; he was personally endeared to me by his many lovely traits of character. The gentle disposition of Captain Bugg won friends for him on all sides; the people of the neighboring town testified their grief by closing their places of business to join in the funeral procession.

I refer you to the report of the Clerk for the exhibit of receipts and disbursements, and to the report of the Commissary for the statement of purchases and issues.

In the statistics of the prison population will be found several tables which have been prepared to meet the questions that are frequently asked by visitors, and sometimes by officials of other prisons, or by representatives of bureaus of statistics. One comparative table, showing the inequality of sentences for the same crimes, will commend itself to the students of penology.

Your attention is invited to the report of the Physician, Dr. F. C. Durant, to whom I am greatly indebted for his cheerful assistance in carrying out all measures for guarding against the probable approach of any disease from neighboring settlements, or from originating on our premises. The remarkable healthfulness of the prison population is cause for congratulation; there is no longer any foundation for the reports about the insalubrity of the climate of this belt of the foothills. Of the seven deaths from diseases, not one can be attributed to any disorders caused by a residence in this locality.

My thanks are due to Captain Chambers, and the other officers of the prison, for untiring devotion to duty, and for hearty support in every undertaking. To you, gentlemen, I wish to make acknowledgment of my indebtedness for many acts of courtesy and unvarying kindness. My unanimous reëlection is appreciated as a very great compliment, but the delicacy of the course of the majority of your Board lifts the action above the plane of personal compliment, and ranks it as an unselfish and commendable tribute to a principle.

Very respectfully, your obedient servant,

JOHN McCOMB, Warden.

REPORT OF THE CLERK

OF THE

State Prison at Folsom, California.

CLERK'S REPORT.

State Prison at Folsom, California,
October 4, 1886.

To the honorable State Board of Prison Directors:

Gentlemen: I herewith submit to your consideration a full statement of the financial transactions of this prison for the thirty-seventh fiscal year, ending June 30, 1886.

Very respectfully,

J. M. MINER, Clerk.

TABLE No. 1.

Cash Receipts of the State Prison at Folsom during the Thirty-seventh Fiscal Year, ending June 30, 1886.

Months.	Sale of Granite	State Treasury—General Appropriation	State Treasury—Prison Wall Account	D. O. Mills & Co.—Loan	Rent—Wooden Buildings	Laundry	Medicines	Guards' Clothing	Miscellaneous	Commissary Sales	Interest and Discount	Totals
1885—July	$605 70									$11 25		$616 95
August	10 20	$20,504 02	$100 00		$64 00	$5 95						20,684 17
September	2,477 14	10,286 06			32 00	11 89	$9 65		$1 85	14 75		12,833 34
October	1,188 60	11,135 36			32 00	11 97	1 50				$164 58	12,534 01
November	1,020 63											1,020 63
December	486 15	19,364 49	394 10		64 00	20 07	10 75	$132 00	30 75			20,502 31
1886—January	387 93	9,145 12	57 50		32 00	3 60			10 02			9,636 17
February	1,472 25	11,377 44										12,849 69
March	599 74	10,584 75			34 00	7 60		9 00	10 00			11,245 09
April	1,357 17	11,194 08			78 00	7 65						12,636 90
May	773 76											773 76
June	1,845 21	552 60		$12,100 00	78 00	15 60		12 50	2 65			14,606 56
Totals	$12,224 48	$104,143 92	$551 60	$12,100 00	$414 00	$84 33	$21 90	$153 50	$55 27	$26 00	$164 58	$129,939 58
Balance on hand July 1, 1885												377 26
												$130,316 84

TABLE No. 2.

Cash Disbursements of the State Prison at Folsom, during the Thirty-seventh Fiscal Year, ending June 30, 1886.

DATE.	Merchandise	Salaries	Postage	Free Labor	Discharged Prisoners	Expense Account.			Live Stock	Farm	Forage	Quarry	Discount and Interest	Warden's House	Totals
						General Expense	Prison Directors	Reward for Escaped Prisoners							
1885—July			$12 63		$74 05	$9 20	$239 20	$50 00							$385 08
August	$14,691 52	$5,503 33	10 00	$265 00	116 70	133 86	146 40								20,866 81
September	7,353 80	2,837 26	16 00	130 00	108 40	252 80	745 00		$300 00			$226 13	$43 16	$7 00	12,019 55
October	8,152 02	2,818 34	11 00	130 00	73 70		114 50					2 60		10 00	11,312 16
November			12 50		92 95	251 75	212 80			$30 00				12 00	612 00
December	16,686 24	5,748 05	16 00	260 00	40 75	78 95					$158 25		13 35		23,001 59
1886—January	6,126 66	2,916 81	7 00	135 00	59 45	12 50	91 60								9,349 02
February	8,285 31	2,962 26	30 00	130 00	34 50	12 80	361 65					29 27		43 50	11,889 29
March	7,457 97	2,896 78	10 00	170 00	165 50	10 00	225 55	50 00		3 00				2 00	10,990 80
April	8,592 53	2,955 00	11 00	185 00	88 55	16 30	61 60					18 07			11,928 05
May		171 80	10 00		66 25		60 00								308 05
June	10,305 36	5,816 77	35 00	360 00	144 45	30 00	469 40	50 00							17,210 98
	$87,651 41	$34,626 40	$181 13	$1,765 00	$1,065 25	$808 16	$2,727 70	$150 00	$300 00	$33 00	$158 25	$276 07	$56 51	$74 50	$129,873 38
Balance on hand June 30, 1886															443 46
															$130,316 84

TABLE No. 3.

Net Earnings during Thirty-seventh Fiscal Year, ending June 30, 1886.

Date.	Sale of Granite	Hogs	Discount, per Year	Interest, per Year	Farm, per Year	Prison Labor	Total	Quarry. Receipts.	Quarry. Expenses. Cash, Labor, Supplies, Etc.	Quarry. Recapitulation. Gains.	Quarry. Recapitulation. Losses.
1885—July	$205 12						$205 12	$605 70	$400 58	$205 12	
August	1,160 30	$226 39					1,386 69	10 20	690 99		$680 79
September								2,477 14	636 05	1,841 09	
October	546 75	34 23					580 98	1,188 60	641 85	546 75	
November	634 60	203 27					837 87	1,020 63	386 03	634 60	
December	159 96	258 24					418 20	486 15	326 19	159 96	
1886—January		9 00					9 00	387 93	744 52		356 59
February	582 73	11 40					594 13	1,472 25	532 93	939 32	
March	238 50	148 74					387 24	599 74	361 24	238 50	
April	932 54	251 58					1,184 12	1,357 17	424 63	932 54	
May	189 74						189 74	773 76	584 02	189 74	
June	1,414 91		$16 97	$91 10	$964 99		2,487 97	1,845 21	430 30	1,414 91	
Prison labor, 1883, purchase of real estate						$15,000 00	15,000 00				
	$6,065 15	$1,142 85	$16 97	$91 10	$964 99	$15,000 00	$23,281 06	$12,224 48	$6,159 33	$7,102 53	$1,037 38

Net earnings of quarry .... $6,065 15.

TABLE No. 4.

Exhibit of the Cost of Maintaining Prisoners for Thirty-seventh Fiscal Year, ending June 30, 1886.

	1885.						1886.						
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	Totals.
Salaries	$2,720 00	$2,802 26	$2,853 34	$2,845 80	$2,870 00	$2,940 96	$2,920 36	$2,946 78	$2,955 00	$2,955 00	$2,923 57	$2,891 64	$34,624 71
Officers' and guards' mess	694 78	669 17	701 00	767 10	694 88	630 84	644 64	611 47	574 10	605 21	532 56	704 59	7,830 34
Prisoners' mess	3,050 55	2,194 99	2,609 83	2,959 39	2,535 90	2,574 54	2,763 31	2,665 64	2,722 84	2,865 46	2,447 60	2,743 37	32,133 42
Warden's house	236 58	234 77	221 63	284 77	248 41	248 87	268 88	259 08	166 21	280 34	235 70	237 91	2,923 15
Postage	12 63	10 00	16 00	11 00	12 50	16 00	7 00	30 00	10 00	11 00	10 00	35 00	181 13
Freight	333 49	236 34	153 93	376 04	486 65	8 98	243 35	----------	66 39	----------	----------	5 23	1,910 40
Forage	202 00	520 00	587 01	----------	----------	50 88	336 79	451 53	248 89	464 28	328 77	139 25	3,329 40
Clothing	342 01	637 04	1,235 44	207 17	421 50	139 76	315 79	276 66	877 22	70 96	231 91	237 72	4,993 18
Laundry	7 67	14 89	113 76	----------	----------	39 74	----------	----------	14 80	----------	----------	31 79	222 65
Stationery	16 03	33 94	69 00	10 30	9 27	24 53	11 48	12 03	19 00	----------	18 03	----------	223 61
Shoes	149 51	152 60	165 59	136 39	166 21	170 08	189 68	218 59	200 74	178 68	207 93	223 59	2,159 59
Telegraphing	164 97	16 76	22 23	19 73	10 58	7 17	7 16	11 62	11 88	11 28	18 89	28 49	330 76
Fuel	840 62	569 33	580 10	----------	284 41	306 80	331 74	715 65	764 59	721 06	265 29	342 51	5,722 10
Light	346 60	305 65	168 70	323 75	320 12	471 50	394 95	442•15	404 58	176 80	165 70	167 30	3,687 80
Medicine	46 31	156 56	44 82	101 65	106 76	56 07	154 25	98 38	52 85	67 33	117 05	63 13	1,065 16
Bedding	28 07	24 47	75	----------	22 50	15 90	1,404 99	350 00	16 76	6 00	17 14	----------	1,586 58
Discharged prisoners	74 05	116 70	108 40	73 70	92 95	40 75	59 45	34 50	165 50	88 55	66 25	144 45	1,065 25
General expenses	847 44	897 68	1,750 03	753 92	1,052 53	868 44	762 97	718 29	763 52	469 27	602 86	963 83	10,450 78
	$10,113 31	$9,593 15	$11,401 56	$8,870 71	$9,335 17	$8,611 81	$10,516 79	$9,842 37	$10,034 87	$8,971 22	$8,189 25	$8,959 80	$114,440 01
Average number of prisoners	564½	566½	567	573½	580	589½	611	626	633	636½	641	645	602¾

Total cost of maintaining prisoners	$114,440 01
Deduct net earnings (see Table No. 3)	23,281 06
Net maintaining cost	$91,158 95

Average number of prisoners	602¾
Average cost per capita per day	$0 41.43
Average cost per capita per month	12 60
Average cost per capita per year	151 24

TABLE No. 5.

State Prison at Folsom.

Assets.		
Prison wall	$7,405 41	
Live stock	2,979 73	
Machinery	8,338 61	
Wooden buildings	19,050 05	
Wagons and harness	3,842 22	
Permanent furniture	16,268 03	
Ordnance	6,613 88	
Prison improvements	33,530 37	
Merchandise in stock (commissary)	4,021 81	
Cash	443 46	
Real estate	15,000 00	
Derrick and fixtures	5,698 62	
Prison building	317,026 84	
Tools	5,788 91	
Telephone line	880 96	
Total assets June 30, 1886		$446,888 90
Liabilities.		
Officers' and guards' salaries	$2,781 64	
Ezra Knapp, for labor	130 00	
P. H. Cloon, for labor	50 00	
Bills due for merchandise	4,180 22	
D. O. Mills & Co., for loan	12,100 00	
		19,241 86
Net assets		$427,647 04

TABLE No. 6.

Increase of Assets during Thirty-seventh Fiscal Year, ending June 30, 1886.

Prison wall		$251 85	
Live stock		71 47	
Machinery		380 65	
Wagons and harness		448 60	
Wooden buildings		3,834 50	
Permanent furniture		997 59	
Ordnance		80 55	
Prison improvements		857 18	
Derrick and fixtures		132 46	
Tools		283 07	
Telephone line		50 87	
Cash		66 20	
Merchandise in stock (commissary)		4,027 18	
Real estate		15,000 00	
		$26,482 17	
Deduct decrease farm	$2,809 72		
Deduct decrease bills receivable	11 25		
		2,820 97	
Increase of assets for the year			$23,661 20
Increase of liabilities.			
P. H. Cloon, for labor		$50 00	
D. O. Mills & Co., for loan		12,100 00	
		$12,150 00	
Deduct decrease bills payable for merchandise	$2,023 68		
Deduct decrease officers' and guards' salaries	1 69		
		2,025 37	
Increase of liabilities for the year			10,124 63
Net increase of assets			$13,536 57
In Account with State of California, Thirty-seventh Fiscal Year.		*Dr.*	*Cr.*
To net maintaining cost		$91,158 95	
To net increase of assets		13,536 57	
By State Treasury, general appropriation			$95,000 00
By State Treasury, balance thirty-sixth fiscal year appropriation			9,143 92
By State Treasury, on prison wall account			551 60
		$104,695 52	$104,695 52

	Trial Balance, June 30, 1886.				New Trial Balance, July 1, 1886.	
	Dr.	Cr.	Losses.	Gains.	Dr.	Cr.
Cash	$443 46				$443 46	
Prison wall	7,405 41				7,405 41	
Live stock	2,979 73				2,979 73	
Machinery	8,338 61				8,338 61	
Farm		$964 99		$964 99		
Wooden buildings	19,050 05				19,050 05	
Wagons and harness	3,842 22				3,842 22	
Permanent furniture	16,268 03				16,268 03	
Ordnance	6,613 88				6,613 88	
Prison improvements	33,530 37				33,530 37	
Prison building	317,026 84				317,026 84	
Tools	5,788 91				5,788 91	
Telephone line	880 96				880 96	
Derrick and fixtures	5,698 62				5,698 62	
Merchandise in stock (Commissary)	4,021 81				4,021 81	
Bills payable for merchandise		4,180 22				$4,180 22
Bill payable for loan (D. O. Mills & Co.)		12,100 00				12,100 00
Real estate	15,000 00				15,000 00	
Prison labor		15,000 00		15,000 00		
State Prison at Folsom		414,110 47				427,647 04
State Treasury (general appropriation)		104,143 92		104,143 92		
State Treasury (prison wall account)		551 60		551 60		
Maintaining cost	114,440 01		$114,440 01			
Ezra Knapp, labor		130 00				130 00
P. H. Cloon, labor		50 00				50 00
Discount		16 97		16 97		
Interest		91 10		91 10		
Officers' and guards' salaries		2,781 64				2,781 64
Live hogs		1,142 85		1,142 85		
Quarry		6,065 15		6,065 15		
Balance			* 13,536 57			
Totals	$561,328 91	$561,328 91	$127,976 58	$127,976 58	$446,888 90	$446,888 90

---

* Being excess of gains, and credited to the State Prison at Folsom.

REPORT OF THE COMMISSARY

OF THE

State Prison at Folsom, California.

COMMISSARY'S REPORT.

Commissary Department,
State Prison at Folsom, Cal., September 13, 1886.

General John McComb, Warden State Prison at Folsom:

Dear Sir: I have the honor to hand you, herewith, my report for the fiscal year ending June 30, 1886. It is in tabular form as follows: Table No. 1, purchases and receipts from farm; Table No. 2, issues, freight, and telegraph expenses.

Respectfully,
JOHN McCOMB, Jr., Commissary.

TABLE No. 1.

Month.	Purchases.	Receipts from Farm.	Total.
July	$8,482 60		$8,482 60
August	7,357 05		7,357 05
September	8,152 02	$1,248 79	9,400 81
October	8,342 31	126 49	8,468 80
November	8,346 64	74 55	8,421 19
December	6,284 91	220 97	6,505 88
January	8,285 31	339 31	8,624 62
February	7,457 97	350 62	7,808 59
March	8,592 53	304 58	8,897 11
April	5,278 91	621 22	5,900 13
May	5,036 45	327 91	5,364 36
June	4,180 22	1,666 30	5,846 52
Totals	$85,796 92	$5,280 74	$91,077 66

TABLE No. 2.

Issues—Freight and Telegraph Expenses for the Fiscal Year ending June 30, 1886, Commissary Department, State Prison at Folsom.

MONTH.	Subsistence	Forage	Bedding	Clothing	Shoes	Laundry	Dispensary	Light	Stationery	Wagons and Harness	Permanent Furniture	Quarry	General Expense	Machinery	Fuel
1885—July	$3,981 91	$202 00	$28 07	$342 01	$149 51	$7 67	$46 31	$346 60	$16 03	$150 50	$88 05	$265 58	$545 91	$22 50	$840 62
August	3,098 93	520 00	24 47	637 04	152 60	20 84	156 56	305 65	33 94	26 17	254 82	560 99	588 05	60 28	569 33
September	3,525 46	587 01	75	1,235 44	165 59	125 65	54 47	168 70	69 00	124 41	96 50	279 92	711 34	291 27	580 10
October	4,001 26	58 17		207 17	136 39	66 10	103 15	323 75	10 30	64 48	123 45	504 25	485 27		
November	3,521 43	52 50	22 50	421 50	166 21	5 68	106 76	320 12	9 27	3 76	194 50	261 03	450 43		284 41
December	3,454 25	139 21	15 90	271 76	170 08		66 82	471 50	24 53	4 87	43 00	191 19	816 74		306 80
1886—January	3,676 83	336 79	1,104 99	315 79	189 68	1 05	154 25	394 95	11 48	1 40	41 02	716 67	661 56		331 74
February	3,492 69	451 53	350 00	276 66	218 59	6 50	98 38	442 15	12 03	23 35	8 15	383 66	343 84	6 60	715 65
March	3,461 15	248 89	16 76	886 22	200 74	18 45	52 85	404 58	19 00	38 51	156 72	85 89	461 96		764 59
April	3,751 01	464 28	6 00	70 96	178 68	10 40	67 33	176 80		3 65	10 00	226 56	401 37		721 06
May	3,215 86	328 77	17 14	231 91	207 93	31 32	117 05	165 70	18 03	12 00		286 52	542 86		265 29
June	3,685 87	139 25		250 22	223 59	13 32	63 13	167 30			2 75	211 50	400 73		342 51
Totals	$42,866 65	$3,528 40	$1,586 58	$5,146 68	$2,159 59	$306 98	$1,087 06	$3,687 80	$223 61	$453 10	$1,018 96	$3,973 76	$6,410 06	$380 65	$5,722 10

MONTH.	Prison Improvements	Wooden Buildings	Live Stock	Ordnance	Prison Wall	Telephone Line	Tools in Use	Railroad Material	Carpenter Shop	Blacksmith Shop	Paint Shop	Shoe Shop	Derrick and Fixtures	Freight	Telegraph	Total
1885—July	$129 52	$3 18		$1 00	$100 00		$4 05		$1 29	$1 84				$333 49	$164 97	$7,772 61
August	381 86	631 98					22 83		2 20	26 42		$0 75		236 34	16 76	8,328 81
September	136 35	624 94		79 30			31 42			40 89				153 93	22 23	9,104 67
October	182 27	897 94		25	63 85		12 82			154 15				376 04	19 73	7,790 79
November	12 09	151 70	$125 00		88 00				13 49	9 65	$119 12	5 12		486 65	10 58	6,841 50
December	7 92	339 31												8 98	7 17	6,340 03
1886—January	4 73	53 10				$50 87								243 35	7 16	8,297 41
February	2 44	897 67											$40 85		11 62	7,782 36
March	3 60	268 58					49 38	$8 91					116 31	66 39	11 88	7,341 36
April		374 60											15 65	42 58	11 28	6,532 21
May		5 50					13 73							62 22	18 89	5,540 72
June		6 75		6 85			23 65							56 73	31 14	5,625 39
Totals	$860 78	$4,255 25	$125 00	$87 50	$251 85	$50 87	$157 88	$8 91	$16 98	$232 95	$119 12	$5 87	$172 81	$2,066 70	$333 41	$87,297 86

REPORT OF THE TURNKEY

OF THE

State Prison at Folsom, California.

TABLE No. 1.

Recapitulation of Received and Discharged Prisoners, from July 1, 1885, to June 30, 1886.

MONTH.	By Commitment	By Commitment — United States Prisoner	Returned by Order of Court	Returned Convict Witnesses	Escapes Recaptured	Transferred from San Quentin	Total Received	Taken out on New Trial	Discharged as per Act	Taken out as Witness	Transferred to San Quentin	Commuted	Pardoned	Escaped	Sent to Napa Insane Asylum	Died	Suicided	Total Discharged	Number of Prisoners on hand at close of each month
1885—July	15				1	1	17	1	8		1	1				1		12	566
August	11			1			12		9	1		1						11	567
September	17						17		17									17	567
October	22		1				23		8	1		1						10	580
November	15			1			16		11			2				1	1	15	581
December	25						25		4			2						6	600
1886—January	35						35	1	8						2	1		12	623
February	12	1					13		5					1				6	630
March	24				1		25		11			4				2		17	638
April	12					2	14	2	10		2	2						16	636
May	18					1	19		8			1						9	646
June	18				1		19		14			2	1	1		2	1	21	644
Totals	224	1	1	2	3	4	235	4	113	2	3	16	1	2	2	7	2	152	

TABLE No. 2.

Nativity of Prisoners.

United States and Territories.	Number.	Foreign.	Number.
Alabama	2	Azores Islands	1
Arkansas	1	Austria	4
Arizona	1	Australia	3
California	115	At sea	1
Connecticut	2	Belgium	1
Colorado	2	Canada	11
Georgia	2	Chili	1
Illinois	13	China	91
Iowa	11	Denmark	1
Indiana	3	East Indies	1
Kansas	1	France	7
Kentucky	4	England	32
Louisiana	5	Germany	33
Massachusetts	23	Holland	1
Maryland	8	Ireland	46
Missouri	18	Italy	7
Maine	5	Mexico	17
Michigan	12	Newfoundland	1
Mississippi	1	New Brunswick	1
New Hampshire	1	Nova Scotia	2
New York	68	Norway	2
New Jersey	1	Poland	2
North Carolina	1	Prussia	4
Ohio	10	Russia	2
Pennsylvania	20	South America	1
Rhode Island	4	Scotland	6
Texas	1	Switzerland	4
Tennessee	2	South Wales	1
Vermont	1	Sweden	1
Virginia	9	Turkey	1
West Virginia	4	West Indies	1
Wisconsin	4	Wales	1
		Japan	1
		Total	289
		RECAPITULATION.	
		United States	355
		Foreign	289
Total	355	Total	644

TABLE No. 3.

Crimes of Prisoners.

Crime.	Number.
Arson, second degree	3
Attempt arson and arson second degree	1
Attempted burglary	7
Attempted crime against nature	2
Attempted kidnapping	1
Attempt arson second degree	1
Attempt to bribe	1
Attempted grand larceny	2
Attempted burglary second degree, prior	1
Assault deadly weapon	11
Assault deadly weapon, prior	2
Assault to murder	18
Assault to murder, assault deadly weapon	1
Assault to murder, prior	1
Assaulting mail carrier and robbing United States mail	1
Assault to rob	5
Assault to rob, prior	3
Burglary	23
Burglary, first degree	108
Burglary, second degree	105
Burglary, first degree, prior	13
Burglary, first and second degree, and grand larceny	3
Burglary, first and second degree	2
Burglary, second degree and grand larceny	1
Burglary, first degree and assault to murder	1
Counterfeiting	1
Extortion	1
Embezzlement	3
Felony	12
Forgery	12
Forgery and prior	1
Grand larceny	100
Grand larceny and prior	5
Grand larceny and burglary	1
Grand larceny and felony	1
Grand larceny and forgery	1
Incest	1
Illegal voting	1
Infamous crime against nature	3
Jail breaking	1
Murder	4
Murder, first degree	41
Murder, second degree	24
Manslaughter	16
Mayhem	1
Perjury	9
Perjury and prior	1
Petit larceny and prior	24
Possessing counterfeit coins	1
Presenting false claim	1
Rape	5
Receiving stolen goods	1
Robbery	50
Robbery and prior	2
Robbing United States mail	1
Assault to rape	2
Total	644

TABLE No. 4.

Classification of Crimes.

Crime.	Number.
Counterfeiting	2
Against decency and morality	17
Forgery	10
Against life	85
Against person	61
Against property	403
Against person and property	63
Against public property	1
Against United States mail	2
Total	644

TABLE No. 5.

Number of Prisoners Received for the year ending June 30, 1886, under conviction of offenses against life.

Crime.	Number.
Murder of the first degree	8
Murder of the second degree	7
Manslaughter	1
Assault with intent to murder	6
Assault with a deadly weapon	10
Total	32

TABLE No. 6.

Terms of Imprisonment.

Term.	Number.	Term.	Number.
Two thirds of year	1	Nine and eleven twelfths years	1
Three fourths of year	1	Fourteen years	16
Five sixths of year	1	Fifteen years	27
One year	28	Sixteen years	2
One and one half years	9	Seventeen years	1
Two years	48	Eighteen years	2
Two and one half years	11	Twenty years	7
Three years	52	Twenty-two years	1
Three and one half years	4	Twenty-five years	10
Four years	37	Twenty-eight years	1
Four and one half years	1	Twenty-nine years	1
Four and three quarters years	1	Thirty years	2
Five years	134	Thirty-four years	1
Five years, and $1,000 fine	1	Forty years	2
Six years	30	Forty-two years	1
Seven years	26	Fifty years	3
Eight years	26	Fifty-five years	1
Nine years	6	Sixty years	1
Ten years	77	Life	54
Eleven years	2		
Twelve years	14	Total	644

TABLE No. 7.

Ages of Prisoners.

Age.	Number.	Age.	Number.
Sixteen years	4	Forty-three years	9
Seventeen years	7	Forty-four years	12
Eighteen years	10	Forty-five years	14
Nineteen years	23	Forty-six years	8
Twenty years	35	Forty-seven years	8
Twenty-one years	21	Forty-eight years	6
Twenty-two years	39	Forty-nine years	4
Twenty-three years	27	Fifty years	4
Twenty-four years	14	Fifty-one years	4
Twenty-five years	23	Fifty-two years	4
Twenty-six years	37	Fifty-three years	8
Twenty-seven years	34	Fifty-four years	5
Twenty-eight years	22	Fifty-five years	2
Twenty-nine years	27	Fifty-six years	3
Thirty years	25	Fifty-seven years	2
Thirty-one years	19	Fifty-eight years	3
Thirty-two years	16	Fifty-nine years	3
Thirty-three years	24	Sixty years	1
Thirty-four years	17	Sixty-one years	4
Thirty-five years	19	Sixty-two years	1
Thirty-six years	14	Sixty-four years	2
Thirty-seven years	18	Sixty-five years	1
Thirty-eight years	23	Sixty-seven years	3
Thirty-nine years	15	Sixty-eight years	1
Forty years	8	Seventy-three years	1
Forty-one years	4		
Forty-two years	6	Total	644

TABLE No. 8.

Number of Terms.

Term.	Number.
Prisoners serving their first term	450
Prisoners serving their second term	145
Prisoners serving their third term	30
Prisoners serving their fourth term	9
Prisoners serving their fifth term	4
Prisoners serving their sixth term	4
Prisoners serving their seventh term	1
Prisoners serving their eighth term	1
Total	644

TABLE No. 9.

Number of Prisoners from each County.

County.	Number.	County.	Number.
Alameda	44	San Bernardino	2
Alpine	1	San Diego	1
Amador	5	San Joaquin	17
Butte	15	San Luis Obispo	10
Calaveras	1	San Mateo	1
Colusa	12	Santa Barbara	11
Contra Costa	2	Santa Clara	17
Del Norte	1	Santa Cruz	2
El Dorado	6	Shasta	3
Fresno	3	Sierra	2
Kern	3	Siskiyou	1
Lake	1	Solano	15
Los Angeles	9	Sonoma	4
Marin	1	Stanislaus	12
Mendocino	5	Tehama	7
Merced	4	Tulare	5
Modoc	2	Trinity	3
Monterey	3	Tuolumne	3
Napa	2	Ventura	9
Nevada	11	Yolo	7
Placer	2	Yuba	14
Plumas	3	District of California	3
San Francisco	272		
Sacramento	87	Total	644

TABLE No. 10.

Previous Occupation of Prisoners.

Occupation.	Number.	Occupation.	Number.
Baker	8	Millwright	2
Butcher	4	Merchant	1
Blacksmith	14	Messenger	1
Broom maker	1	Marble cutter	1
Boatman	3	No occupation	4
Boiler maker	2	Painter	14
Barber	11	Physician	2
Bookkeeper	10	Peddler	1
Boot maker	1	Pipe maker	1
Brakesman	2	Printer	4
Bricklayer	3	Pastry cook	2
Barkeeper	3	Plumber	6
Bootblack	1	Quarryman	1
Button maker	1	Reporter	1
Clerk	16	Railroad employé	3
Cook	45	Railroad accountant	1
Cigar maker	4	Ragpicker	1
Carpenter	12	Sailor	16
Cabinet maker	2	Stonecutter	3
Copyist	1	Salesman	2
Cable telegraph operator	1	Saddler	1
Constable	1	Servant	1
Carriage body maker	1	Steward	3
Cooper	1	Sawyer	1
Druggist	3	Stonemason	1
Dairyman	1	Soldier	2
Engineer	5	School teacher	1
Engineer and interpreter	1	Sheepherder	1
Fireman	5	Sail maker	4
Farmer	31	Shoe cutter	2
Fish peddler	1	Shoe maker	20
Gardener	8	Saddle tree maker	1
Glass blower	1	Shoe fitter	1
Glove cutter	1	Silver smelter	1
Hostler	14	Seamstress	1
Horseshoer	4	Surveyor	1
Harness maker	4	Sport	1
Horse trainer	1	Stove moulder	1
Iron puddler	2	Tailor	9
Iron bridge builder	1	Tinsmith	3
Jockey	1	Teamster	20
Laborer	173	Turner	1
Locksmith	2	Tanner	1
Lumberman	1	Upholsterer	2
Laundryman	19	Vaquero	5
Lead smelter	1	Valet	1
Lithographer	1	Waiter	30
Milliner	1	Watch maker	1
Miner	12	Woodchopper	2
Moulder	5	Wool washer	1
Machinist	11		
Morocco dresser	1	Total	644

TABLE No. 11.

Occupation of Productive Class of Prison Laborers.

Where Employed.	July, 1885	August, 1885	September, 1885	October, 1885	November, 1885	December, 1885	January, 1886	February, 1886	March, 1886	April, 1886	May, 1886	June, 1886
Carpenters' shop	12	14	13	16	15	15	13	13	12	14	11	16
Blacksmith shop (steel)	28	28	28	29	30	32	33	32	32	31	32	33
Blacksmith shop (iron)	4	5	4	4	4	4	4	4	4	4	4	4
Blacksmith shop (new quarry)	----	----	----	----	----	1	2	2	2	2	2	2
Blacksmith shop (new building)	2	2	2	----	----	----	----	----	----	----	----	----
Harness shop	1	1	1	1	1	1	1	1	1	1	1	1
Paint shop	3	3	3	2	2	3	2	3	3	3	2	3
Tin shop	2	2	2	2	3	2	2	3	3	3	2	2
Plumbers	2	2	2	2	2	2	2	2	3	3	2	2
Engineer department	10	10	11	11	10	10	10	10	10	10	10	10
Road builders	5	5	5	5	5	6	7	8	6	5	5	5
Gardeners (flowers)	14	15	14	13	15	14	16	15	14	12	16	15
Gardeners (vegetables)	6	6	6	7	7	6	7	6	7	6	16	16
Brush cleaners and grubbers	15	13	14	15	12	14	12	13	14	14	7	7
Wood cutters	12	11	10	12	13	12	14	8	8	10	7	7
Teamsters	14	14	14	15	15	16	16	16	16	16	16	16
Dairymen, sheepherders, and live stock	2	2	2	2	2	2	2	2	2	3	2	3
Track and freight gang	9	8	9	7	6	6	6	7	6	6	7	7
Riggers	1	1	1	1	1	1	1	2	2	2	2	2
Building west wall	3	3	----	----	----	----	----	----	----	----	----	----
Building south cross wall	6	6	6	----	----	----	----	----	----	----	----	----
Building east wall	----	----	----	----	----	----	----	----	----	----	----	----
Building foot wall	6	6	6	6	6	6	6	6	6	6	6	6
Building addition to prison	14	13	14	----	----	----	----	----	----	----	----	----
Stonecutters	98	99	96	100	100	100	110	113	112	134	101	100
Tool carriers	16	17	16	14	15	15	14	13	13	13	13	13
Derrick men and stone bankers	10	10	10	10	10	10	10	10	10	10	10	10
Drillers and chainers, green derrick quarry	40	40	40	60	50	50	40	40	40	30	40	33
Drillers and chainers, brown derrick quarry	30	11	21	43	36	32	32	28	21	8	20	----
Cart loaders and shovelers	15	20	25	20	25	30	36	25	25	25	20	25
Graders on north bank	10	15	10	9	8	6	6	6	6	6	13	12
Building tower on river	3	6	8	6	6	6	3	3	3	3	3	3
Cleaners in yard	6	5	4	6	6	6	6	6	6	4	6	6
Paving block makers	8	10	8	8	10	12	20	25	28	35	20	40
Drillers in new quarry	----	----	----	----	----	20	30	36	40	38	48	50
Haymakers	----	----	----	----	----	----	----	----	----	----	21	21
Totals	407	403	405	416	415	440	452	458	455	457	465	464

TABLE No. 12.

Occupation of Non-Productive Class of Prison Laborers.

WHERE EMPLOYED.	July, 1885	August, 1885	September, 1885	October, 1885	November, 1885	December, 1885	January, 1886	February, 1886	March, 1886	April, 1886	May, 1886	June, 1886
Warden's house	4	4	4	4	4	4	4	4	4	4	4	4
Warden's office	1	1	1	1	1	1	1	1	1	1	1	1
Clerk's office	2	2	2	2	2	2	2	2	2	2	2	2
Commissary	4	4	4	4	4	4	4	4	4	4	4	4
Commandant's office	5	5	5	5	5	4	4	4	4	4	4	4
Turnkey's office	2	2	2	2	2	3	3	3	3	3	3	3
Officers' quarters	2	2	2	2	2	2	2	2	2	2	2	2
Officers' and guards' dining room and kitchen	8	8	8	9	9	9	8	9	9	9	9	9
Prisoners' dining room and kitchen	30	30	30	30	31	31	32	33	32	33	33	33
Incapables	15	16	14	16	18	20	18	20	22	20	21	20
Hospital and dispensary	3	3	3	3	4	4	4	4	4	5	5	5
Tailor shop	4	4	4	4	4	4	4	4	4	4	4	4
Shoe shop	5	5	5	5	5	5	5	5	5	5	5	5
Butcher shop	1	1	1	1	1	1	1	1	1	1	1	1
Gate tenders	4	4	4	4	4	4	4	4	4	4	4	4
In confinement as punishment	4	7	6	1	1	4	6	-----	6	1	2	1
In confinement as incorrigible	9	10	11	13	12	13	13	13	15	16	14	14
Whitewashers	6	5	6	6	4	4	4	5	6	6	7	7
Assistants to officers inside the prison	3	3	3	3	3	3	3	3	3	3	3	3
Cell tenders	8	8	8	8	8	8	9	9	9	9	9	9
Cleaners and closet men	7	8	7	9	9	8	7	9	9	10	10	10
Lamplighters	3	3	3	3	3	3	3	3	3	2	2	2
Library	1	1	1	1	1	1	1	1	1	1	1	1
Stable	2	2	2	2	3	3	3	3	3	3	3	3
Laundry	11	11	11	11	11	10	10	10	11	11	11	11
Warden's laundry	2	2	2	2	2	2	2	2	2	2	2	2
Sweepers and cleaners in upper yard	7	7	7	7	7	7	7	7	7	7	8	8
Barbers	3	3	3	3	3	3	4	4	4	4	4	4
Gas house	1	1	1	1	1	1	1	1	1	1	1	1
Shirt makers	2	2	2	2	2	2	2	2	2	2	2	2
Total	159	164	162	164	166	160	171	172	183	179	181	180

TABLE No. 13.

Statistics of environments as stated by the prisoners severally, on their receipt at the prison, commencing July 1, 1885, and ending June 30, 1886. Detail of their habits, relations, and conditions prior to their arrest and conviction, and the causes that led thereto.

	Number.
Color.	
White	188
Black	5
Mulatto	2
Indian	3
Chinaman	32
Total	230
Residents of State	147
Non-residents of State	83
Total	230
Industrial Relations.	
Trade	74
Knowledge of trade	3
No trade	153
Total	230
Moral Relations.	
Temperate	78
Moderate	17
Intemperate	92
Opium users	43
Total	230
Educational.	
Read, write, and cipher	137
Read and write	52
Read only	8
Illiterate	33
Total	230
Schools.	
Public schools	139
Private schools	52
College	6
No school	33
Total	230
Attending Church.	
Regular	57
Irregular	114
Never	59
Total	230
At Sunday School.	
Regular	57
Irregular	114
Never	59
Total	230

	Number.
Religious Denomination.	
Catholic	66
Baptist	11
Episcopal	9
Lutheran	13
Methodist	28
Presbyterian	8
Universalist	3
Hebrew	2
Mormon	1
Pagan	30
No religion	29
Total	230
Conjugal Relations.	
Married	36
Married and separated	12
Widower	12
Single	170
Total	230
Social Relations.	
Parents living	65
Parents dead	86
Father living	21
Mother living	51
No knowledge of parents	7
Total	230
Age when Parents Died.	
Under 10 years when father died	9
Over 10 years when father died	14
Over 18 years when father died	17
Under 10 years when mother died	11
Over 10 years when mother died	17
Over 18 years when mother died	18
Parents that are not dead	144
Total	230
Soldiers or Sailors.	
Served in United States Army	17
Served in United States Navy	3
Served in German Army	13
Served in English Army	3
Served in English Navy	1
Served in Italian Army	2
Served in no branch of service	191
Total	230
How Crime was Committed.	
Alone	170
With accomplices	60
Total	230

TABLE No. 13—Continued.

	Number.		Number.
Cause of Crime.		*Plea.*	
Crime caused by liquor	92	Pleaded guilty	154
Crime caused by destitution	60	Pleaded not guilty	76
Crime caused by bad associates	78	Total	230
Total	230	Pleaded guilty because had neither money nor friends	122
Cause of Committing Crime.			
Professional criminals	41	Pleaded not guilty, because had money and friends	76
Destitution	48	Pleaded guilty, because of prior conviction	32
Liquor	92		
Opium	43		
Women	6		
Total	230	Total	230

TABLE No. 14.

Monthly Issue of Prison Clothing to Prisoners for the year ending June 30, 1886.

	July, 1885	August, 1885	September, 1885	October, 1885	November, 1885	December, 1885	January, 1886	February, 1886	March, 1886	April, 1886	May, 1886	June, 1886	Total
Pants	63	89	100	120	139	100	56	141	122	124	118	108	1,280
Shirts	30	101	104	114	148	109	100	105	94	95	124	82	1,206
Shoes	67	64	108	83	128	83	103	99	91	99	121	77	1,122
Hats	42	108	191	106	75	54	42	92	113	76	69	3	971
Check shirts	12	22	10	5	6	6	-----	-----	11	20	48	-----	140

There were issued, in addition to the above, the following:

Socks	2,398 pairs.	Blankets	1,500 in Winter.
Blankets	1,200 in Summer.	Citizens' clothing	136 suits.

TABLE No. 15.

Prison Library Report for the year commencing July 1, 1885, and ending June 30, 1886.

TITLE OF BOOK ISSUED.	Number Issued.	Percentage.
Bibles and Testaments	36	3.08
Biographical	8	0.68
Historical	12	1.02
Poetry	2	0.17
Periodicals	600	50.00
Religious	80	6.80
Romance	300	25.50
Science	6	0.51
School books in daily use	72	6.12
Slates in daily use	72	6.12
Total	1,188	100.00

REPORT OF THE PHYSICIAN

OF THE

State Prison at Folsom, California.

PHYSICIAN'S REPORT.

General John McComb, Warden State Prison at Folsom:

Dear Sir: I have the honor to make the following report of the Medical Department of this prison for the year ending June 30, 1886:

In making this report I have again to congratulate you on the continued healthfulness of the prison. With an increased number of prisoners our death rate and hospital inmates have been no greater than last year.

This, I think (considering that the present Summer, on account of the sudden changes from cold to extreme heat, and the occupation of most of the men, has caused an unusual amount of bowel trouble and more or less intermittent), is a most remarkable showing for the healthfulness of the place, and ought to silence the most captious critic.

I find an average of 606½ inmates; that there has been 2,110 calls at the dispensary—an average of 175 and a fraction per month and five and a fraction per day.

There was excused from labor during the year 183—an average of 65 and a fraction monthly and a fraction over two per day; this includes all cases from serious to trivial.

On examining the hospital register there were two inmates on July 1, 1886; that there was 28 admitted during the year, and at the close of the year five patients still remained in the hospital. Among the number of the hospital patients are two—one suffering from partial paralysis and the other blind—who are not sick, but not able to buffet their way with the other prisoners in the cell building; also, two who have been admitted more than once for the same disease.

On looking at the death list I find 9 deaths: 2 from consumption, 2 suicides, 1 congestion lungs, 1 syphilitic scrofula, 1 general debility, 1 hemorrhage lungs, and one from inflammation of the bowels, caused from eating castor beans.

Taking the suicides from the number, we have but seven deaths from disease for the year, making a death rate of a small fraction over one per cent (1.06), and not one from what are termed local diseases. Not a single death from any kind of fever or bowel trouble.

I challenge comparison with any institution, with a like number of inmates, in the world.

We have been singularly fortunate in our escape from accidents in the quarry, no injuries occurring requiring an operation, with the exception of two unfortunates whose eyes were injured by bits of flying steel, which resulted in severe inflammation, requiring enucleation, which was kindly performed for me by my friend, Dr. W. E. Briggs, of Sacramento.

I would respectfully suggest that the Hon. Board of Directors authorize the procuring of a glass eye for each of these prisoners.

The remarkably good results, as shown, I attribute, as in my report of last year, to the continued most excellent sanitary regulations which you have kept in force, and to the great care of the officers in charge of the men while at work.

Annexed please find tables taken from hospital register:

Diseases of Patients sent to Hospital.

Consumption	4	Chronic bronchitis	1
Rheumatism	3	Scrofula	1
Pneumonia	2	Cerebral abscess	1
General debility	3	Scalp wounds	2
Paralysis, partial	1	Penetrating wound of abdomen	1
Opium habit	1	Knife wound of hand	1
Dyspepsia	1	Inflammation of eye	2
Bright's disease	1	Inflammation of bowels from eating castor beans	1
Typho-malarial fever	1		
Congestion lungs	1		

Deaths During the Year Ending June 30, 1886.

Northrup	Died July 27, 1885	Consumption.
McManus	Died November 8, 1885	Suicide.
Jou Jou	Died November 26, 1885	Inflammation bowels from eating castor beans.
Connor	Died January 24, 1886	Hemorrhage of lungs.
Wilson	Died March 7, 1866	Congestion lungs.
Ah Kee	Died March 19, 1886	Consumption.
Cash	Died June 5, 1886	Syphilitic scrofula.
Hemming	Died June 12, 1886	General debility.
Ah Chung	Died June 26, 1886	Suicide.

Respectfully submitted.

F. C. DURANT, M.D.,
Physician State Prison at Folsom.

SUPPLEMENTAL REPORT.

SUPPLEMENTAL REPORT.

State Prison, at Folsom, Cal.,
October 4, 1886.

To the honorable State Board of Prison Directors:

Gentlemen: I have the honor to submit this supplemental report for the reasons which follow:

The decision of the Supreme Court, in the cause of *The People of the State of California* vs. *The Folsom Water Power Company*, is adverse to the State; the judgment of the Superior Court, sustaining the demurrer of the defendant, is affirmed.

It is over four years since your predecessors directed me to bring the suit, and as many of the circumstances connected with the case are not known to the present members of the Board of Prison Directors, it seems to be necessary to present the facts to you for your enlightenment and to guide you in taking any other steps that may be required.

In July, 1882, while the prison was furnishing to the Folsom Water Power Company the labor of eighty convicts, daily, in aid of the canal enterprise mentioned in the deed conveying the land for the prison site; the Trustees of the Folsom Water Power Company appeared before the State Board of Prison Directors, and made a demand for an interpretation of the deed, as to the number of days' labor to be given in satisfaction for what was conveyed by the indenture. The Trustees of the Folsom Water Power Company claimed that they were entitled to $15,000, in convict labor, at the rate of fifty cents per day, for the tract of 483 acres on which the prison is located, and a further $15,000, in convict labor, at the rate of fifty cents per day, in consideration of the exclusive right to the use of the first five feet fall, perpendicular, of the whole water of the canal, at the point where it reaches the prison yard. Your honorable Board requested me to obtain the opinion of the Attorney-General, and, acting on the advice of Attorney-General Hart, that "the $15,000—the consideration first named—in convict labor, at fifty cents per day, is in full satisfaction for all that is conveyed by the deed, including the exclusive right to the use of the first fall, five feet perpendicular, of the whole water of the canal," directed me to convey this opinion to the Trustees of the Folsom Water Power Company as your interpretation of the deed.

On the twenty-fifth of August, 1882, the President of the Folsom Water Power Company gave notice that the construction given to the deed by the Attorney-General could not be accepted by the company, and that after the thirtieth of August the company would decline doing any more work with convict labor until the question at issue could be judicially determined.

On the eighteenth of September, 1882, I was instructed to bring suit against the Folsom Water Power Company, to obtain a judicial construction of the terms of the deed, and to protect the rights of the State. Other duties occupied the time of Attorney-General Hart, and no steps were taken that year. In January, 1883, the matter was laid before Attorney-General Marshall, and he employed Presley Dunlap, Esq., to bring the suit. After the death of Judge Dunlap the suit was given successively to Hon. W. C. Van Fleet, to W. B. Treadwell, Esq., and to W. H. Beatty, Esq.

In the Superior Court, where the action was brought to compel the performance of the contract to construct the canal, defendant demurred that the complaint did not state facts sufficient to constitute a cause of action. The Court sustained the demurrer, and the case was appealed to the Supreme Court, where the judgment of the Court below was affirmed.

The following letters and extracts from the minutes of the proceedings of the Board of Prison Directors will show the progress of the dispute. The complaint gives the history of the negotiations for the prison site.

Respectfully submitted.

JOHN McCOMB, Warden.

Meeting September 23, 1881. Page 72:

Resolved, That the State of California, by its State Board of Prison Directors, hereby tenders to the Natoma Water and Mining Company the labor of one hundred convicts, pursuant to the contract made and entered into by and between said State and Natoma Water and Mining Company, on the thirtieth day of June, 1868; and,

Resolved further, That the Warden of the State Prison at Folsom immediately give notice to said company of said tender by serving on said company a copy of these resolutions.

Meeting December 19, 1881. Page 128:

On motion, the matter of computing time of convict labor furnished the Natoma Water and Mining Company as per contract, be referred to the Warden, to report at the next meeting of the Board.

Meeting July 17, 1882. Page 183:

On motion, the following was adopted:

Resolved, That in consequence of the ambiguity of the contract between the Natoma Water and Mining Company and the State of California, dated June 30, 1868, as regards the number of days of prison labor to which said company is entitled under said contract, the Warden forward a copy of said contract to the Attorney-General, and request his opinion, at his earliest convenience, as to the number of days of prison labor to which said company is entitled under the same.

Meeting August 17, 1882. Pages 186 and 187:

OFFICE OF THE ATTORNEY-GENERAL OF THE STATE OF CALIFORNIA,
SACRAMENTO, CALIFORNIA, July 22, 1882.

Hon. JOHN McCOMB, *Warden State Prison, Folsom:*

DEAR SIR: In conformity with the request contained in your letter of the nineteenth instant, I have carefully examined the deed from the Natoma Water and Mining Company to the State of California, with the view of ascertaining the proper construction to be given to it, and it is my opinion that the consideration first named, fifteen thousand dollars in convict labor, at fifty cents per day, is in full satisfaction for all that is conveyed by the deed, including the exclusive right to the use of the first fall five feet perpendicular of the whole water of the canal, etc.

Respectfully,

A. L. HART,
Attorney-General.

Meeting August 17, 1882. Page 189:

On motion, the following was adopted: In view of the advice given by the Attorney-General as to the construction to be given to the contract between the State of California and the Natoma Water and Mining Company, dated June 30, 1868, the State Board of Prison Directors are of the opinion that the consideration first named in the deed, fifteen thousand dollars in convict labor, at fifty cents per day, is in full satisfaction for all that is conveyed by the deed, including the exclusive right to the use of the first fall five feet perpendicular of the whole water of the canal.

Meeting September 18, 1882. Pages 197 and 198:

San Francisco, August 25, 1882.

Geo. W. Schell, Esq., *President Board of State Prison Directors, San Quentin:*

Dear Sir: I am advised that at the last meeting of your Board you decided to construe the contract between this company, as assignee of the Natoma Water and Mining Company, and the State of California, to mean that only $15,000 in convict labor was due the company from the State, instead of $30,000, as claimed by this company. I cannot in justice to this company accept such a construction of the contract; and, as the cost of building the canal to supply the State with five feet fall of water will greatly exceed the cost of building it as originally surveyed for our own use alone, I beg leave to notify you that after the thirtieth day of this month, this company, reserving all its rights to further labor due from the State, will decline doing any more work on the said canal with convict labor, until the question at issue between the company and the State can be judicially determined. Trusting that the question may be so determined as soon as practicable, and assuring you that this company is desirous of treating the matter in the most amicable manner,

I remain, very truly yours,

JOHN H. REDINGTON,
President Folsom Water Power Company.

Meeting September 18, 1882. Pages 195 and 196:

On motion, the following resolution was adopted:

Resolved, That the Warden of this prison be and is hereby instructed to confer with the Attorney-General regarding the rights of the State in relation to the matter at issue between the Board of Directors and the Folsom Water Power Company, successors and assignees of the Natoma Water and Mining Company, representing the contract of June 30, 1868, and that if so advised by the Attorney-General, he be authorized and instructed to bring suit in the name of the Board of State Prison Directors against the said Folsom Water Power Company to obtain a judicial construction of the terms of the said contract, as to the number of days' work to be furnished in convict labor to said company, and to protect the rights of the State in said matter.

Page 198, 199, and 200:

Folsom, Cal., September 6, 1882.

John H. Redington, Esq., *President Folsom Water Power Company:*

Dear Sir: I am directed by Judge Schell, President of the Board of Prison Directors, to acknowledge receipt of your letter of August twenty-fifth, directed to him at San Quentin, and forwarded to this place, and to inform you that the Board of Prison Directors will tender the labor of the convicts called for by your last requisition, eighty convicts, pursuant to the indenture made the thirtieth day of June, 1868, between the Natoma Water and Mining Company and the State of California, and demand that the company of which you are President, as successor of the Natoma Water and Mining Company, shall accept the same in aid of its water power canal enterprise; and further to notify you that in case of refusal on the part of said company to accept the same, said company will be held responsible for such refusal, and will be charged at the rate of fifty cents per day for each convict whose labor is tendered. In accordance with the instructions of the President of the Board of Prison Directors, concurred in by a majority of the members of the Board, and approved in a verbal opinion given by the Attorney-General of the State of California, the labor of eighty convicts, less such number as may have been excused by the Physician, has been tendered each day on the site of the canal where the convicts have been heretofore employed, and the labor will be so tendered each day, and charged to the account of the company at the rate of fifty cents per day for each convict whose labor is tendered. In the absence of any person on the canal representing the company, a written notice to this effect has been posted on the blacksmith shop belonging to the company.

Very respectfully, your obedient servant,

JOHN McCOMB, Warden.

Pages 200, 201, 202, and 203:

Folsom, Cal., September 8, 1882.

Hon. A. L. Hart, *Attorney-General:*

My Dear General: I have the honor to inform you that the State Board of Prison Directors adopted your opinion as their guide in interpreting the deed of the Natoma Water and Mining Company to the State of California, and informed the successors to that corporation (the Folsom Water Power Company), that they should consider the $15,000 first named in the deed, payable in convict labor at the rate of fifty cents per day, as being in full satisfaction of all that was conveyed in the deed, including the exclusive right to the use of the first fall five feet perpendicular of the whole water of the canal at the point known as Prison Yard. On receipt of that information, the Directors of the Folsom Water Power Company gave formal notification that they should decline doing any more work on the canal with convict labor until the question at issue (whether the deeds mean $15,000, or $30,000, in payment for the prison site, and use of water-power), can be judicially determined. After the thirty-first day of August, as intimated in their letter (inclosed herewith), the Folsom Water Power Company declined to receive the services of the convicts offered to them at the place where they had formerly been employed, which offer was made and done on the first of September, in the presence of Mr. Banks, the Agent, and Mr. Grant, the Foreman of the company, and has been done daily on the second, fourth, fifth, sixth, seventh, and eighth, with no person on the works to receive the convicts. On the fifth I sent a written notice, making the tenders of the labor of the convicts, and had the notice posted on the side of the blacksmith shop on the company's works. The notice reads: September 5, 1882. Agent Folsom Water Power Company: I hereby tender to your company, as the successors to the rights of the Natoma Water and Mining Company, the labor of eighty convicts, in accordance with the requisition made for prisoners to aid in completing the Water

Power Canal. The labor of the eighty convicts will be tendered each day, and will be charged to the account of your company. Respectfully, etc.

I have also written a letter to the President of the Folsom Water Power Company, and sent it through the mail, making the tender of the labor of eighty convicts, under the instructions of the Board of Prison Directors, with your verbal approval, and demanding that the labor so tendered be employed in completing the Water Power Canal. Mr. Livermore, Secretary and Manager of the company, has been personally informed of these proceedings, when on a visit to the prison and to the canal. I now respectfully ask for advice as to what steps I shall take to protect and preserve the interests of the State, under the terms of the deed. Shall I tender the labor of the convicts daily, if there is no person to receive the labor? As the labor has been formally refused on the first of September, and I have notified the company that each convict's labor will be charged to them at the rate of fifty cents per day, shall I lock the convicts in their cells, or may I employ them in grading the yard, or any other necessary work for which I do not receive pay from other contractors? What steps are necessary to reach a judicial determination of the question?

Very respectfully, your obedient servant,

JOHN McCOMB, Warden.

Page 203–204:

FOLSOM, CAL., September 20, 1882.

JNO. H. REDINGTON, ESQ., *President Folsom Water Power Company:*

DEAR SIR: I am acting under the instructions of the Board of Prison Directors in tendering you the labor of the convicts at the works where they were formerly employed, and in charging the labor to the account of your company. The Attorney-General advises the course that is being pursued, and says that when desired suit can be brought against your company for a breach of contract. In order to obtain a judicial construction of the deed, I am instructed and authorized by the Board of Prison Directors to bring suit, and the Attorney-General announces his readiness to make an agreed case, so that an early decision can be had. As you are naturally anxious for a speedy settlement of the question, I respectfully suggest that you instruct your attorney to consult with the Attorney-General, and arrange an agreed case to be presented to the Court. I will notify Attorney-General Hart immediately on receipt of your reply to this proposition.

Your obedient servant,

JOHN McCOMB, Warden.

Page 204–205:

FOLSOM, CALIFORNIA, September 20, 1882.

Hon. A. L. HART, *Attorney-General of California:*

DEAR GENERAL: In accordance with your desire, I have tendered the labor of the convicts to the Folsom Water Power Company on their works, and have given written notice of the tender to the officers, which tender and notice they are advised to ignore by their attorney. The President of the company, in an official communication, expressed a desire for an early settlement of the question, and I have notified him that you are willing to make an agreed case to reach a judicial determination speedily; also, asking him to direct the company's attorney to call on you. I am instructed by the Board of Prison Directors to bring the necessary action, which I now request you to do.

Very respectfully, your obedient servant,

JOHN McCOMB, Warden.

Meeting April 17, 1883. Page 243:

On motion, the Clerk was directed to charge up on the books the number of days' labor of convicts had and received by the Natoma Water and Mining Company on account of purchase of land, the days to be reckoned at eight hours for each day, and also to charge up the number of days of convict labor tendered to the Natoma Water and Mining Company on the same account since the thirty-first of August, 1882.

Meeting July 25, 1883. Page 265:

On motion, General John McComb, Warden, was instructed to discontinue the further tender of convict labor to the Natoma Water and Mining Company, the State having fully complied with the terms of the deed with said company, dated thirtieth June, 1868, for the purchase of land, 30,000 days' convict labor at fifty cents per day, $15,000.

Meeting November 26, 1883. Page 286:

Director Van Fleet presented the following resolution, which was, on motion, adopted:

Resolved, That the Warden, John McComb, be and he is hereby authorized and directed to take such steps and to bring and prosecute such action as he may be advised by the Attorney-General is necessary to determine the rights of the State in the matter of differences that has arisen between the corporation known as the Natoma Water and Mining Company, whose rights have now been assigned to the corporation known as the Folsom Water Power Company, and the State Board of Prison Directors, as to the construction of the instrument conveying to the State the land on which the State Prison at Folsom is situated.

I hereby certify the foregoing to be a true and correct copy, as recorded in the official proceedings of the State Board of Prison Directors at the State Prison at Folsom, California, and delivered to General John McComb, Warden of said prison.

J. M. MINER, Secretary.

State Prison at Folsom, Cal., Oct. 19, 1886.

COMPLAINT.

In the Superior Court of the State of California, in and for the County of Sacramento.

THE STATE OF CALIFORNIA,
Plaintiff,
vs.
THE FOLSOM WATER POWER COMPANY, a corporation,
Defendant.

Plaintiff complains of defendant, and alleges: That defendant is, and has been, since the seventh day of December, 1881, a corporation organized and doing business under the laws of the State of California.

That, on the thirtieth day of June, 1868, the Natoma Water and Mining Company was and ever since has been a corporation, organized and doing business under the laws of the State of California.

That, on said thirtieth day of June, 1868, said Natoma Water and Mining Company, for a valuable consideration, made, executed, and delivered to plaintiff, its certain indenture in writing, of which the following is a copy:

DEED.

NATOMA WATER AND MINING COMPANY }
TO THE STATE OF CALIFORNIA. }

[$\$15\frac{50}{100}$ U. S. Revenue Stamp, canceled.]

This indenture, made this thirtieth day of June, Anno Domini eighteen hundred and sixty-eight, between the Natoma Water and Mining Company, a corporation duly incorporated under and by virtue of the laws of the State of California, and having its principal place of business in the village of Folsom in said State, party of the first part, and the State of California, party of the second part, witnesseth: That the said party of the first part, for and in consideration of the sum of one dollar, lawful money of the United States, to it in hand paid by the second party, receipt whereof is hereby acknowledged, and in further consideration of fifteen thousand dollars ($15,000) in convict labor, rated at fifty cents per diem, to be furnished to said first party in aid of its water power canal enterprise by said party of the second part, but only at the convenience of the State and whenever it may be deemed advisable and judicious by the Board of State Prison Directors of said State, has granted, bargained, sold, conveyed, and confirmed, and by these presents does grant, bargain, sell, convey, and confirm unto the said State of California, forever, all that certain piece or parcel of land situate, lying, and being in Granite Township, Sacramento County, State of California, and being a portion of the larger tract patented by the United States Government, under the name of "Rancho Rio de los Americanos," the portion thereof herein conveyed being particularly and specifically described as follows, to wit: Beginning at a point on the east boundary line of said rancho, fifteen feet from where said line projected northwardly intersects the American River at high water mark; thence along said east boundary of said rancho south seventy-five (75) chains and fifty (50) links to a point; thence at a right angle west to a point within ten feet of the eastern line of water canal of the Natoma Water and Mining Company, which said canal is near the eastern bank of the American River; thence northerly along said canal, and ten feet from the eastern line thereof, to a point ten feet above the dam across said American River constructed by and belonging to said Natoma Water and Mining Company; thence at a right angle westerly to a point fifteen (15) feet above the American River at high water mark; thence along said river northeasterly following its meanderings on a line fifteen feet above high water mark to the place of beginning, containing three hundred and fifty (350) acres of land; together with all and singular the tenements, hereditaments, and appurtenances thereunto belonging, or in anywise appertaining, with the timber standing thereon and the granite quarries contained therein, and the reversion and reversions, remainder and remainders, rents, issues, and profits thereof, and also all the estate, right, title, interest, property, possession, claim, and demands whatsoever, as well in law as in equity, of the said party of the first part, of, in, or to the above described premises, and every part and parcel thereof, with the appurtenances; also, the exclusive right forever to the use of the first fall five feet perpendicular of the whole water of the canal at the upper end of that place, on the canal known as "Prison Yard," with all rights, privileges, and easements necessary for the taking and enjoyment of power from said fall, it being understood that the said party of the first part reserves to itself the subsequent power resulting from the flow of water in said canal after the first fall as aforesaid, and that this instrument is not to be construed as granting unto said State the right to divert said water or any material quantity thereof permanently from said canal. To have and to hold all and singular the above mentioned and described premises, together with the appurtenances unto the said State of California forever. And the said party of the first part warrants the said premises to be free from all and every incumbrance of any kind, character, or description, and against any and all incumbrances now existing upon said premises created or suffered by said party, or by any other party, will forever warrant and defend. But in accordance with the resolutions upon the Branch State Prison location passed by the Board of State Prison Directors on the eighteenth day of June, A. D. 1868, the above grant of water power is upon condition, always, that said Board of State Prison Directors do furnish and supply at such times and in such manner as it may deem advisable and judicious, fifteen thousand dollars in convict labor, rated at fifty cents per diem, for each convict employed unto said first party in aid and construction of its water power canal and adjuncts now partially completed along the western line of the lands heretofore described, or so much of the same as may suffice for the completion of dam and canal down to the point of delivering the said water power at the upper part of Prison Yard, as already mentioned.

In witness whereof, the President and the Secretary of the said Natoma Water and Mining Company, acting for said company, under and by virtue of a resolution passed by the Board of Trustees of said company, at a regular meeting thereof, held at Folsom on the thirtieth day of April, A. D. eighteen hundred and sixty-eight, which said resolution is in the following words, to wit:

Resolved, That the Committee on Prison Site be also authorized to make all arrangements with the Board of State Prison Directors for the location of a Branch Prison upon the company's property, and the President and Secretary are hereby empowered and directed to execute, in behalf of this company, and all deeds and agreements to and with said Board of State Prison Directors in behalf of the State of California, as shall be agreed to between the said Board and this company's Committee on Prison Site.

Which resolution still stands as an order of said Board of Trustees upon the books of said company unrevoked and unrepealed; have hereunto set their hands and seals, the said Natoma Water and Mining Company having no corporation seal, on the day and year first above written. The word "Rio" is interlined between the fourth and fifth lines of the second page before signing.

[SEAL.] HORATIO G. LIVERMORE,
President of the Natoma Water and Mining Company.

[SEAL.] ROGER S. DAY,
Secretary of the Natoma Water and Mining Company.

Which said deed was duly acknowledged, and recorded in the office of the County Recorder of Sacramento County in Book 50 of Deeds, pages 138, 139, 140, and 141.

That, on the eighteenth day of June, 1868, the Board of State Prison Directors of said State duly passed and adopted certain resolutions, which are the same resolutions mentioned and referred to in the above recited indenture, of which resolutions the following is a copy:

Resolved, That, after an examination of the proposed sites for a branch prison at Rocklin and Folsom, it is the judgment of this Board that the site at Folsom, by reason of its water-power, possesses advantages over that at Rocklin, and that the site at Folsom be therefore selected; provided, however, that the Natoma Water Company, in accordance with their offer, convey to the State the tract of three hundred and fifty acres, with the quarries and timbers, free of incumbrances, by an unconditional deed; and also the water-power, conditioned upon the expenditure of fifteen thousand dollars in convict labor, at such time as the Board may hereafter determine to be judicious, in the event that it should be thought desirable to organize a branch prison.

Resolved, That in the selection of the above site this Board do not intend to express any opinion in favor of the organization of a branch prison, as they deem it better to reserve the question of the policy of such a step for further consideration.

That theretofore the said Natoma Water and Mining Company had made an offer to said Board of State Prison Directors, to the effect that said corporation would convey to said State the tract of land described in the above recited indenture, with the quarries and timbers thereon, free of charge, by an unconditional deed, and would also convey the water-power and privileges in said indenture mentioned, conditioned upon the expenditure of fifteen thousand dollars, in convict labor, upon the terms and for the purpose mentioned in said indenture; which offer is the same offer mentioned in the above recited resolutions; and the Natoma Water Company, mentioned in said resolutions, is the same corporation named in this complaint as the Natoma Water and Mining Company.

That, at the date of the execution and delivery of the above recited indenture, the said Natoma Water and Mining Company had planned and located the water-power canal and dam therein referred to, and had partially completed the construction of the same.

That, on the eighth day of December, 1881, the said Natoma Water and Mining Company, by its certain indenture, under seal, bearing that date, granted, bargained, sold, conveyed, and assigned to defendant the said water-power canal, together with the land over which the same was constructed and to be constructed, and the water-power, rights, and privileges thereunto appertaining, together with all the rights and privileges of the said Natoma Water and Mining Company arising or to arise under the provisions of the first above recited indenture, and in and to the convict labor to be furnished by plaintiff under said provisions.

That, in consideration of said conveyance and assignment, said defendant thereupon undertook the performance of such portion of the contract contained in the first above recited indenture as was to be performed by said Natoma Water and Mining Company, and assumed all the liabilities of said Natoma Water and Mining Company thereunder.

That, in pursuance of the terms and conditions of the first above recited indenture, and of the said conveyance and assignment to defendant, plaintiff furnished and supplied to defendant, in aid and construction of its said water-power canal and its adjuncts, convict labor, rated at fifty cents per diem for each convict employed, amounting in the aggregate to the sum of five thousand five hundred dollars; which convict labor was furnished and supplied at such times and in such manner as was deemed advisable and judicious by the State Board of Prison Directors of said State, and was accepted by defendant, and employed by it in the construction of said water-power canal and adjuncts.

That on the thirty-first day of August, 1882, said defendant ceased work on the said dam and canal and has not resumed work on the same, and neither the said dam nor the said canal has ever been completed, down to the point of delivering the said water power at the upper part of prison yard as specified in the first above recited indenture, or to any other point.

That immediately previous to the cessation of said work, defendant required plaintiff to furnish the labor of eighty convicts on said work in accordance with the terms of said first above recited agreement; and said amount of labor was thereupon furnished by plaintiff until the cessation of said work.

That thereafter, to wit: on the first, second, fourth, fifth, sixth, seventh, and eighth days of September, 1882, and on each of said days, plaintiff offered and tendered defendant, on said works, the labor of eighty convicts to be employed on said works in accordance with said agreement, and demanded of defendant that it should accept said labor and employ it on said works, and should continue the construction of the said dam and canal in accordance with said agreement; but the said defendant then and there refused and ever since has refused to accept or employ said labor or any part thereof, or to continue the construction of said works, or to complete the same or any part thereof, or to furnish the water power mentioned in said agreement or any part thereof.

That plaintiff has at all times been ready and willing and is now ready and willing to furnish such amounts of convict labor as may from time to time be required by defendant in accordance with the terms of said agreement.

And plaintiff further alleges that the said first above recited indenture was made and accepted for the purpose of enabling plaintiff to erect, on the land thereby conveyed, a State Prison; and the agreement therein contained to furnish said water power, was a material and valuable consideration and inducement to plaintiff to accept said conveyance, without which plaintiff would not have accepted the same; and the use of said water power was and is necessary to plaintiff in the proper management and care of such prison.

That after the date of the first above recited indenture, and before the date of said assignment and conveyance to defendant, plaintiff, at great cost and expense, erected on said premises a State Prison, and placed and now maintains a large number of convicts therein; and plaintiff will be irreparably damaged by being deprived of the use of said water power in the management of said prison.

Wherefore, plaintiff prays that, by the decree of this Court, said defendant be required, within such reasonable time as the Court shall fix, to recommence the construction of said dam and canal, and diligently to continue such work as long as plaintiff shall furnish such convict labor in accordance with the terms of said agreement, until the whole amount required by said agreement be furnished; and, upon the furnishing by plaintiff of the whole amount of labor so required by said agreement, to complete the said dam and canal so as to furnish plaintiff the said water power, namely, the first fall five feet perpendicular at the upper part of said prison yard, as required by said agreement; and that plaintiff recover its costs herein expended, and have such other and further relief as may belong to equity and good conscience.

E. C. MARSHALL, Attorney-General,
And TREADWELL & VAN FLEET,
Attorneys for State of California, retained by Attorney-General.

SUMMONS.

STATE OF CALIFORNIA, }
COUNTY OF SACRAMENTO. } ss.

In the Superior Court, in and for said county.

The People of the State of California to the Folsom Water Power Company, a corporation, greeting.

You are hereby notified that an action was commenced in the Superior Court of the County of Sacramento, State aforesaid, by filing a complaint in the Clerk's Office of said Court, on the twenty-eighth day of May, 1884, in which action the State of California is plaintiff, and you are defendant.

That the general nature of the action, as appears from said complaint, is as follows: To obtain a judgment and decree of said Court, requiring the specific performance by defendant of a certain contract which is fully set out in said complaint, entered into between plaintiff and the Natoma Water and Mining Company, a corporation, on the eighteenth day of June, 1868, providing for the furnishing to plaintiff by said Natoma Water and Mining Company on the site of the State Prison at Folsom, of a certain water power described in said contract, and which said contract, and the rights and obligations of said Natoma Water and Mining Company thereunder, it is alleged has been assigned to and assumed by the defendant. That the nature of said action is fully set out in said complaint, a copy of which is hereunto attached and referred to as part thereof, and you are hereby directed to appear and answer said complaint within ten days from the service of this writ, exclusive of the day of service, if served on you in said County of Sacramento, and within thirty days, exclusive of the day of service, if served elsewhere; and you are further notified that unless you so appear and answer within the time above specified, the plaintiff will apply to the Court for the relief demanded in the complaint.

In testimony whereof, I, Charles M. Coglan, Clerk of the Court aforesaid, do hereunto set my hand and affix the seal of said Court, this twenty-eighth day of May, 1884.

CHARLES M. COGLAN, Clerk.

[L. S.]

STATE OF CALIFORNIA, }
CITY AND COUNTY OF SAN FRANCISCO. } ss.

Thomas R. Knox, first being duly sworn, deposes and says that he is a citizen of the United States, over the age of twenty-one years, and that he is not a party to or interested in the result of the action named in the within summons; that on this fifth day of June, A. D. 1884, he personally served the within summons on Horatio P. Livermore, the Secretary of the Folsom Water Power Company, the within named defendant, known to affiant to be such, by delivering to said Livermore, in the said City and County of San Francisco, a copy of said summons, and a copy of the complaint filed in said action.

THOMAS A. KNOX.

Subscribed and sworn to before me this fifth day of June, A. D. 1884.

CHAS. F. STANLEY,
Notary Public.

DEMURRER.

[Title of Court and Cause.]

Now comes the above named defendant and demurs to the complaint filed herein, upon the following grounds:

1.

The said complaint does not state facts sufficient to constitute a cause of action.

2.

Wherefore defendant prays judgment.

A. P. CATLIN,
Attorney for Defendant.

AMENDMENT TO COMPLAINT.

[Title of Court and Cause.]

Now comes the above named plaintiff, and, by leave of the Court first asked and obtained, files the following amendment to the complaint herein, namely:

Insert in said complaint, after the words "and plaintiff will be irreparably damaged by being deprived of the use of said water power in the management of said prison," and immediately before the prayer for judgment, the following:

"And plaintiff further alleges that the construction and completion of said dam and canal in accordance with the terms of said contract is practicable and easy, and that defendant is fully able to construct and complete the same in accordance with said terms; and that the performance of said contract can be specifically enforced by this Court without difficulty or hardship to defendant.

"And plaintiff further alleges that said contract is reasonable and fair in all its terms, and that the same is supported by a full, fair, and adequate consideration received by defendant and its said assignor."

E. C. MARSHALL, Attorney-General,
And TREADWELL & VAN FLEET,
Attorneys for Plaintiff.

SECOND DEMURRER.

[Title of Court and Cause.]

Now comes the above named defendant and demurs to the complaint as amended herein, upon the following grounds:

I.

The said complaint as amended does not state facts sufficient to constitute a cause of action.

Wherefore defendant prays judgment.

A. P. CATLIN,
Attorney for Defendant.

DEMURRER TO AMENDED COMPLAINT.

[Title of Court and Cause.]

This demurrer to plaintiff's amended complaint, coming on regularly to be heard this day, with W. B. Treadwell appearing as counsel for the plaintiff, and A. P. Catlin appearing as counsel for the defendant; whereupon, and counsel for both plaintiff and defendant consenting thereto, the demurrer was submitted to the Court upon the argument formerly made, and the Court being fully advised in the premises, it is therefore ordered that the demurrer be and the same is hereby sustained; and the plaintiff declining to further amend its complaint, it is ordered that judgment be and the same is hereby entered in favor of the defendant.

Dated Monday, July 20, A. D. 1885.

Attest: A true copy. WM. B. HAMILTON, Clerk.
[L.S.] Per W. W. RHOADS, Deputy.

JUDGMENT.

[Title of Court and Cause.]

This cause having been heard by the Court upon the complaint as amended, and upon the demurrer thereto filed on the twentieth of July, 1885, and the cause having been argued by counsel for the respective parties and duly considered by the Court, now here it is ordered that said demurrer be sustained; and counsel for the plaintiff having in open Court declined to amend the complaint, and said refusal to amend having been duly entered in the minutes of the Court, now, therefore, by reason of the law and the said order of the Court and of the premises, it is ordered and adjudged that plaintiff take nothing by said action, that the complaint be dismissed, and that defendant go hence without day, and have and recover the costs of suit, taxed at $——, and all accruing costs.

Attest: A true copy.
[L.S.] W. B. HAMILTON, Clerk.
Filed July 20, 1885.
W. B. HAMILTON, Clerk.

[Title of Court and Cause.]

To W. C. VAN FLEET, ESQ., W. B. TREADWELL, ESQ., *Attorneys for Plaintiff:*

Take notice that on the seventeenth day of December, 1884, the Court entered an order in this action sustaining the defendant's demurrer herein, and allowing plaintiff ten days to amend complaint, if it be so advised.

A. P. CATLIN,
Attorney for Defendant.

December 18, 1884.

[Title of Court and Cause.]

To the above named defendant and A. P. Catlin, Esq., its attorney:

You will please take notice that the above named plaintiff hereby appeals to the Supreme Court of the State of California from the whole of the judgment entered against it in the above entitled action in said Superior Court.

E. C. MARSHALL,
Attorney-General,
And W. B. TREADWELL,
Attorneys for Plaintiff.

Due service of copy of foregoing notice of appeal is hereby admitted this twenty-fourth day of July, 1884.

A. P. CATLIN,
Attorney for Defendant.

In the Supreme Court of the State of California.

THE STATE OF CALIFORNIA,
Appellant,
vs.
THE FOLSOM WATER-POWER COMPANY,
Respondent.

Points and Authorities for Appellant.

This is a suit in equity to enforce the specific performance of a contract. The defendant interposed a general demurrer to the complaint, which was sustained by the Court, and the plaintiff declining to amend, final judgment was entered for defendant, from which judgment plaintiff now appeals.

The material facts shown by the complaint are as follows:

On March 30, 1868, the Legislature of the State passed an Act (Stats. 1867–8, p. 627), of which section one reads as follows:

> It shall be the duty of the Board of State Prison Directors of this State, on or before the first day of July, A. D. 1868, to make the selection and location of the site for a Branch State Prison, and to cause a good and sufficient deed of the land so selected to be made to the State of California, as provided for in section six of the Act to which this is supplemental. Said site and location shall be made either in the Township of Rocklin, in Placer County, or on the lands offered to the State by the Natoma Water and Mining Company, in Granite Township, Sacramento County, as said Board shall determine, selecting between those sites the place which offers the greatest advantages for prison purposes.

The Natoma Water and Mining Company, named in this Act, was a corporation, and the offer made by them and referred to in this Act was that they would convey to the State of California a certain tract of land, free of charge, by an unconditional deed, and would also convey certain water-power and privileges (hereafter to be described), conditioned upon the expenditure of fifteen thousand dollars in convict labor, rated at fifty cents per diem for each convict employed, to be furnished at such times and in such manner as the Board of State Prison Directors should deem advisable and judicious, in aid and construction of the water-power canal of said corporation (hereafter to be described) down to the point of delivery of said water-power to said State.

At that time, said Natoma Water and Mining Company had planned, located, and partially constructed a dam across the American River, and a water-power canal, situated on their own land, and running along the entire northwesterly boundary of the tract so proposed to be conveyed.

On June 18, 1868, the Board of State Prison Directors, in accordance with said Act, adopted the following resolution:

> *Resolved*, That after an examination of the proposed sites for a branch prison at Rocklin and Folsom, it is the judgment of this Board that the site at Folsom, *by reason of its water-power*, possesses advantages over that at Rocklin, and that the site at Folsom be therefore selected; *provided*, however, that the Natoma Water Company, in accordance with their offer, convey to the State the tract of 350 acres, with the quarries and timber, free of incumbrances, by an unconditional deed, and also the water-power, conditioned upon the expenditure of $15,000 in convict labor at such time as the Board may hereafter determine to be judicious, in the event that it should be thought desirable to organize a branch prison.

On June 30, 1868, in pursuance of said offer and resolution, said Natoma Water and Mining Company executed and delivered a deed to the State, the material parts of which are as follows:

> The said party of the first part, for and in consideration of the sum of one dollar, * * * and in further consideration of fifteen thousand dollars, in convict labor, rated at fifty cents per diem, to be furnished to said first party in aid of its water-power canal enterprise, by said party of the second part, but only at the convenience of the State, and whenever it may be deemed advisable and judicious by the Board of State Prison Directors of said State, has granted, bargained, sold, conveyed, and confirmed, and by these presents does grant, bargain, sell, convey, and confirm unto the said State of California forever, all that certain piece or parcel of land * * * beginning at a point on the east boundary line of said rancho, fifteen feet from where said line, projected northwardly, intersects the American River at high water mark; thence along said east boundary of said rancho south 75 chains and 50 links to a point; thence at a right angle west to a point within ten feet of the eastern line of the water canal of the Natoma Water and Mining Company, which said canal is near the eastern bank of the American River; thence northerly along said canal, and ten feet from the eastern line thereof, to a point ten feet above the dam across said American River constructed by and belonging to said Natoma Water and Mining Company; thence * * * to the place of beginning, containing 350 acres of land; * * * also, the exclusive right forever to the use of the first fall five feet perpendicular of the whole water of the canal at the upper end of that place on the canal known as "Prison Yard," with all rights, privileges, and easements, necessary for the taking and enjoyment of power from said fall, it being understood that the said party of the first part reserves to itself the subsequent power resulting from the flow of water in said canal after the first fall as aforesaid, and that this instrument is not to be construed as granting unto said State the right to divert said water, or any material quantity thereof, permanently from said canal. To have and to hold, etc. * * * But, in accordance with the resolutions upon the Branch State Prison location, passed by the Board of State Prison Directors on the eighteenth day of June, A. D. 1868, the above grant of water-power is, upon condition always, that said Board of State Prison Directors do furnish and supply, at such times and in such manner as it may deem advisable and judicious, fifteen thousand dollars in convict labor, rated at 50 cents per diem for each convict employed, unto said first party, in aid and construction of its water-power canal and adjuncts now partially completed along the western line of the lands heretofore described, or so much of the same as may suffice for the completion of dam and canal down to the point of delivering the said water-power, at the upper part of Prison Yard, as already mentioned.

This deed was made and accepted for the purpose of enabling the State to erect on said premises a State Prison; and the agreement therein contained to furnish said water was a material inducement to the State to accept said deed, without which it would not have accepted it.

Thereafter the State, at great cost and expense, erected on said premises a State Prison, and has ever since maintained a large number of convicts therein; and the use of said water is necessary in the proper management and care of said prison.

On December 8, 1881, said Natoma Water and Mining Company conveyed to defendant said water-power canal, together with the land over which the same was constructed and to be constructed, and the water-power rights and privileges thereunto appertaining, and assigned to defendant all the rights and privileges of said first named corporation arising out of the said contract with the State, and in and to said convict labor.

In consideration of said conveyance and assignment, defendant undertook the performance of said contract, and assumed all the liabilities of said Natoma Water and Mining Company thereunder.

Thereafter plaintiff furnished to defendant, in accordance with said contract, convict labor amounting to five thousand five hundred dollars, which was accepted by defendant and employed by it in the construction of said canal.

On August 31, 1882, defendant ceased work on said dam and canal, and has never resumed work on the same; and said dam and canal have never been completed so as to furnish to plaintiff said water-power or any part thereof.

Immediately previous to the cessation of said work, defendant had demanded of plaintiff the labor of eighty convicts on said work, and that amount of labor was furnished by plaintiff and used by defendant up to the cessation of said work. Thereupon, on September first, second, fourth, fifth, sixth, seventh, and eighth, plaintiff offered and tendered to defendant the labor of eighty convicts on said work, and demanded that defendant should accept said labor, and proceed with the construction of said dam and canal in accordance with said agreement; but defendant refused and ever since has refused to accept or employ said labor or any part thereof, or to continue the construction of said works, or to furnish said water-power or any part thereof.

Plaintiff is and always has been ready and willing to furnish the convict labor required by said agreement.

The complaint further alleges that said contract is reasonable and fair, and supported by an adequate consideration: that the construction of said dam and canal in accordance therewith is practicable and easy, and that defendant is fully able to construct and complete the same; that the performance of said contract can be specifically enforced by the Court without difficulty or hardship to defendant: and that plaintiff would be irreparably damaged by being deprived of the use of said water-power in the management of said prison.

The complaint, besides asking for general relief, contains the following prayer:

> Wherefore plaintiff prays that, by the decree of this Court, said defendant be required, within such reasonable time as the Court shall fix, to recommence the construction of said dam and canal, and diligently to continue such work so long as plaintiff shall furnish such convict-labor in accordance with the terms of said agreement, until the whole amount required by said agreement be furnished; and, upon the furnishing by plaintiff of the whole amount of labor so required by said agreement, to complete the said dam and canal so as to furnish to plaintiff the said water-power, namely: the first fall five feet perpendicular, at the upper part of said prison yard, as required by said agreement.

Defendant, in the Court below, based its demurrer on the following grounds: That the complaint did not show that any *contract* was ever made between the State and the Natoma Water and Mining Company by which said corporation agreed, or was bound to furnish said water-power, or to construct or complete said canal; that, if such a contract existed, *defendant* could not be held liable upon it for want of privity between defendant and the State; and that, in any event, the contract is not one of which specific performance can be decreed. We will consider these three objections in their order.

I.

The complaint shows that the Natoma Water and Mining Company were the owners of certain lands, and certain water-rights connected therewith; that they had planned, located, and partially constructed a dam and canal on and over said lands, adapted to furnish water-power; that they offered to convey a portion of said land to said State, for the construction of a State Prison, free of charge, and to furnish to the State, upon certain conditions, a certain amount of water-power from said canal; that the State accepted this offer, in preference to offers from other persons, solely on account of the water-power so to be furnished; and that, in pursuance of said offer and acceptance, said corporation executed the deed in question. This deed, by apt words of conveyance, granted to the State a certain definite amount of water-power, to be obtained from the canal located on the lands retained by the corporation, on condition that the State should furnish a certain amount of labor in aid of the construction of said canal, or so much of said amount as should suffice for the completion of said canal down to the point where said water-power was to be delivered to the State. The State accepted the conveyance, erected a State Prison on the land conveyed, and proceeded to furnish the labor so required; and said labor, to a large amount, was accepted by the corporation, and employed on the construction of said canal.

Now, if these facts do not establish a contract on the part of the corporation, that it would complete said canal to the point of delivery of said water-power, upon being furnished with the stipulated aid, it would be difficult to say what facts would be sufficient for that purpose. Yet the defendant boldly contended that the whole effect of this deed, so far as it relates to this matter, was that the corporation agreed that, if it should ever choose to complete the canal, the State should be entitled to use the water, but that the completion of the canal was left entirely to the option of the corporation. No reason was assigned for this construction, and we are at a loss to understand upon what ground it can be based.

The general rule is well stated in *Frey* v. *Johnson*, 22 How. Pr. 323, as follows:

> If, in a written contract under seal, the words manifest a clear intention that a party shall do certain things not expressly stipulated, a covenant to do such acts will be inferred; and an action may be maintained for their non-performance in like manner as if the instrument had contained express covenants to perform them.

Watson vs. *O'Hern*, 6 Watts, 362.
Tufts vs. *Charlestown*, 2 Gray, 281.
Thomas vs. *Poole*, 7 Gray, 83.
Paschall vs. *Passmore*, 15 Pa. St. 295.
Aiken vs. *A. V. C. R. R. Co.*, 26 Barb. 290.
Huff vs. *Nickerson*, 27 Me. 106.
Parker vs. *Smith*, 17 Mass. 413.
Goodwin vs. *Gilbert*, 9 Mass. 510.
Marshall vs. *Craig*, 1 Bibb. 383.
Kendall vs. *Talbot*, 2 Bibb. 614.
Rogers vs. *E. F. Co.*, 9 Wend. 611.
Midgett vs. *Brooks*, 12 Ired. L. 145.
Severn vs. *Clerks*, 2 Leon, 122.
Clapham vs. *Moyle*, 1 Keble, 842.
S. C., 1 Lev. 155.

In the present case, the whole consideration which moved the State to enter into this contract was the water-power it expected to receive; and that water-power was *conveyed* to it, by words of grant *in presenti*, not on condition that the grantor should see fit to furnish it, but on condition that the grantee should furnish a specified amount of aid toward the construction of the necessary works. Under this deed the grantor is estopped from denying that it is bound to complete the work, and especially so after the State constructed the prison and furnished part of the stipulated labor.

II.

But defendant contends that, however strongly the Natoma Water and Mining Company may have been bound by that deed, the *defendant* is under no obligation whatever concerning it. To this position there are two obvious and conclusive answers.

(a.) This covenant, as it provided for a thing to be done concerning the lands of both parties in connection, and which was beneficial to and binding on the owners respectively, *as owners*, runs with the land, and may be enforced by or against the grantee of either party.

Aikin vs. *A. V. & C. R. R. Co.*, 26 Barb. 290, 293.
Holmes vs. *Buckley*, Finch's Prec. Ch. 39.
S. C., 1 Eq. Cas. Abr. 27.

Defendant having acquired the title to the canal and the land over which it runs, is therefore liable on the covenant.

(b.) It is alleged in the complaint that the Natoma Water and Mining Company conveyed to defendant the canal and the land on which it is situated, and the water-rights connected therewith, and assigned to it all its rights under the contract and in and to said convict labor; and that, in consideration thereof, defendant undertook the performance of said contract and assumed all the liabilities of said Natoma Water and Mining Company thereunder.

This contract, though not made with plaintiff, was made for the benefit of plaintiff, and plaintiff is, therefore, entitled to sue upon it.

Civil Code, §1559.
Sacramento Lumber Co. vs. *Wagner*, 7 W. C. R. 262, and authorities there cited.
Flint vs. *Cadenasso*, 64 Cal. 83.
Morgan vs. *O. S. M. Co.*, 37 Cal. 537.
Carnegie vs. *Morrison*, 2 Met. 381, 401.
McDonald vs. *Laev*, 35 Wis. 171.

Even if defendant had not been liable originally, it would now be estopped from denying its liability on the contract, after receiving and accepting the labor furnished by plaintiff under the contract, and employing that labor for its own benefit.

III.

Defendant lastly insists that specific performance of the contract in question, can not be enforced in equity. The reasons on which this contention is based, as nearly as we could gather them upon the argument in the Court below, are that the Court would have no means of carrying its decree into effect, and that the defendant might be wholly unable to perform the contract. The best answer to these objections will be to refer to some of the cases in which similar contracts have been enforced.

The general rule is thus stated in 3 Parsons on Contracts, p. *372:

> It is undoubtedly competent for a Court of equity to enforce the specific performance of a contract by a defendant to do defined work upon his soil, in the performance of which the plaintiff has a material interest, and which is not capable of adequate compensation in damages.

Storer vs. *The Great Western Railway Co.*, 2 Younge & Coll., ch. 48.
Sanderson vs. *Railway Company*, 11 Beav. 497.
Pembroke vs. *Thorpe*, 3 Swanst. 437, 443.
Stuyvesant vs. *New York*, 11 Paige, 414, 426.
Aikin vs. *A. V. & C. R. R. Co.*, 26 Barb. 289, 300.
Holmes vs. *Buckley*, Finch's Prec. Ch. 39; 1 Eq. Cas. Abr. 27.
Wilson vs. *Railway Co.*, L. R., 9. Eq. 28.
Greene vs. *Railway Co.*, L. R., 13 Eq. 44.
Price vs. *Penzance*, 4 Hare, 506.
1 Story Eq. Jur., §§ 721 a, 722, 728.
Valloton vs. *Leignett*, 2 Abb. Pr. 121.
Phillips vs. *Berger*, 8 Barb. 527.
S. C., 2 Barb. 608.
Willard vs. *Ford*, 16 Neb. 543.

In the present case, it seems to us, there can be no doubt as to the right of the plaintiff to the relief asked, within the doctrine of the foregoing authorities. There is here a contract by defendant to do certain defined work on its own soil; plaintiff has a material interest in having that work done, and is the one for whose benefit the contract was made; and damages would not be an adequate remedy. As the work has to be done on defendant's land, plaintiff cannot do it without becoming a trespasser; and it is plain that plaintiff's failure to obtain the thing contracted for can no more be compensated by damages than could the failure to obtain the conveyance of a tract of land, in an ordinary case, be so compensated. As to the difficulty of enforcing the decree, there is nothing in the complaint which suggests the existence of any such difficulty, and that matter is well disposed of in the cases cited. The suggestion that defendant may be unable to perform the work, as well as the other suggestion, are met by a direct averment in the complaint; and, even without such an averment, it could not be presumed, on demurrer, that the decree could not be carried out. All such matters are to be determined upon the hearing, when all the facts are before the Court; for, of course, it is impossible, in a mere pleading, to get at the details. We submit that a general demurrer can not be sustained, unless the case is such that the Court has absolutely *no power* to grant any relief whatever; and that such is not the case here is abundantly shown by the authorities cited.

We submit that the judgment should be reversed, with directions to the Court below to overrule the demurrer to the complaint.

E. C. MARSHALL,
Attorney-General, and
WM. H. BEATTY,
For Appellant.

IN THE SUPREME COURT OF THE STATE OF CALIFORNIA.

THE STATE OF CALIFORNIA,
Appellant,
vs.
THE FOLSOM WATER POWER COMPANY,
Respondent.

Respondent's Points and Authorities.

The action was to compel the defendant to build a dam and canal in the American River, near the Branch State Prison, in pursuance of a supposed or alleged contract, made in 1868, between defendant's assignor and the State.

April 24, 1858, an Act was passed, entitled "An Act for the government of the State Prison convicts, and to provide for the location of a branch prison." (Stat. 1858, p. 259.)

This Act created the Governor, Lieutenant-Governor, and Secretary of State a Board of Prison Directors, and charged them with the management and control of the State Prison and convicts. It authorized them to select a location and purchase a site for a branch prison, and to remove "such a number of convicts as they may deem proper" to such "branch site." Seventy-five thousand dollars was appropriated, together with the proceeds of the convict labor, for the general purposes of the Act.

During the succeeding ten years nothing was done by the Prison Directors in the matter of procuring a place for a branch prison.

Thirtieth of March, 1868, an Act, supplemental to the above mentioned Act, was passed (Stat. of 1868, p. 627), directing the Prison Directors, before the first of July then next, to select a site for a Branch State Prison, and to cause a deed of the land so selected to be made to the State. The Act directed the selection to be made either at Rocklin or at Folsom, "as the Board shall determine, selecting between those sites the place which offers the greatest advantages for prison purposes."

Accordingly, on the thirtieth of June, 1868, the Prison Directors procured from the Natoma Water and Mining Company the deed set forth at large in the transcript, from folios 3 to 11.

1.

The grantor did not contract with the grantee to build the dam and canal.

2.

There was no consideration received by the grantor from the State to support such supposed contract.

3.

There is nothing on the face of the deed nor any allegation in the complaint showing that the grantor promised to construct the dam and canal.

4.

It appears, merely, that the canal was a scheme in contemplation; it had been planned and commenced. The Natoma Company conveyed to the State three hundred and fifty acres of land, containing valuable timber and quarries. The deed did not embrace the land upon which the dam and canal were to be built. It was a gift, without any consideration, except that, in case the State should conclude to erect a prison, which it carefully abstained from promising to do, and, in case of erecting a prison, it should conclude to allow the convicts to be used as laborers by the donor. which it particularly guarded itself from promising to do, then, and only then, the donor was to receive a stated amount of convict labor "in aid of its water power canal enterprise," planned for the utilization of the natural water power of the American River.

There is nothing, as before stated, in the nature of the contract, in the deed, to construct a canal. It may be supposed that the Natoma Company then intended to construct some kind of a canal—such a one as it had projected and commenced, though, on what scale of magnitude or quality, does not appear. And it may also be supposed that the Prison Directors supposed, from the circumstances of the surveying, planning, and commencing of the work, and its apparent practicability and value, that it would be built. Upon this supposition they relied, if they relied at all; not upon any contract or promise of the Natoma Company that it would build the canal. This is apparent, not only from the absence of any contract or promise to build the canal upon the face of the deed, but from the express stipulations in the deed that the State did not bind itself to furnish the convict labor "in aid" of the enterprise. Whose enterprise was it? Not the State's. Upon whose land was it? Not upon the land donated to the State. Who was to pay for it and take the chances of its success or failure? Not the State.

If, from the facts appearing on the face of the deed and in the complaint, anything in the nature of a contract can be made out, it can be no more than an agreement without a consideration by the Natoma Company that if it should carry its canal project to completion, it would donate to the prison the use of the first fall of five feet of the water in the canal.

5.

The State, on the other hand, did no more agree to furnish the convict labor than the company agreed to build the canal. The Prison Directors were careful not to contract the prison labor to the company "in aid of its enterprise." In fact, they had no authority then (and I think they have not had since) to use such labor by contract, or otherwise, except inside of the prison. It was stipulated in the deed that the State should not be bound to furnish the labor, "but only at the convenience of the State, and whenever it may be deemed advisable and judicious by the Board of State Prison Directors of said State."

The deed also refers to a resolution adopted by the Board of State Prison Directors, on the eighteenth of June, 1868, whereby it was "resolved that in the selection of the above site, the Board do not intend to express any opinion in favor of the organization of a branch prison, as they deem it better to reserve the question of the policy of such a step for further consideration."

So there was neither any agreement to build a prison on the donated lands, nor any agreement in case a prison should be built to furnish convict labor to the donor of the lands.

The most the State agreed to was, that in case it should deem it judicious to build a branch prison on the donated lands, and then should deem it advisable and judicious to turn over the convicts to the donor for the stated time, it would do so.

Some ten years later the State concluded, presumably upon ground of public policy, to build the branch prison (certainly not in consequence of any obligation on its part to the Natoma Company); and fourteen years after this alleged contract is supposed to have been made, according to the averment of the complaint, it was deemed advisable and judicious by the State Prison Directors to furnish defendant, which in the meantime had succeeded to the interest of the Natoma Company, with eighty convicts to labor upon the construction of a canal, which, though a live project fourteen years before, was then an "obsolete idea," notwithstanding it appears that the defendant then made a weak effort to revive it.

The complaint avers that in 1882 the Directors did supply a certain amount of the labor, "at such times and in such manner as was deemed advisable and judicious by the State Board of Prison Directors;" not at such times or in such manner as was desirable or available by defendant, though it is averred that it was accepted.

It is further averred that afterward, on several certain days selected by themselves, the Directors tendered to defendant eighty convicts, which it appears was eighty more than defendant wanted to have anything to do with, and consequently refused to take, and this is the breach of the alleged contract.

6.

The case of *Pembroke* vs. *Thorp*, 3 Swanst. 437, quoted by appellant, is a peculiar one.

(The reporter's note, at page 427, quotes five cases in support of the proposition that a specific performance may be decreed of a covenant to build, and six cases wherein the proposition is denied.)

Paschall vs. *Passmore*, 15 Pa. St. 295, quoted by appellant's counsel, was an action on the case to recover damages for the wanton conversion of water, in which there was a verdict for plaintiff for $200. There does not seem to be any principle or question in the case applicable to the case at bar, unless it be the following taken from the syllabus: "The grantors undertaking to build a bridge, amounts to a covenant which goes only to a part of the consideration, and its failure may be compensated in damages; such failure cannot, therefore, justify a stoppage of the waste-weir, or other diversion of the waste water."

The case was this. The plaintiff was the grantor to defendant of a stream of water, reserving to his own use certain waste water, agreeing to maintain a bridge over the canal carrying such waste water. The defendant wantonly deprived plaintiff of the waste water, and set up as excuse that plaintiff had failed to maintain a bridge.

In *Aitken* vs. *Albany, etc. R. R.* one of the principal questions was whether the covenant to construct and maintain "two good farm crossings" ran with land.

The railroad company entered under the deed, and built their road upon a high embankment through the lands granted for the purpose, with the covenant above mentioned reserved.

There is no analogy between that case and the one at bar.

Frey vs. *Johnson*, 22 How. Pr. N. Y. 316.

"A contract, to be perfect, must contain in the body of it, or by necessary implication, the names of the contracting parties, the subject-matter of the contract, the consideration, and the promise."

In the case at bar, there is neither consideration nor promise, and the subject is incapable of being reduced to certainty.

It is true the complaint avers that "said contract is reasonable and fair in all its terms, and that the same is supported by a full, fair, and adequate consideration, received by the defendant and its assignor." But it does not state what consideration was received or promised. The averment *assumes* a contract, and *argues* that it is fair and reasonable.

7.

There are cases in which equity has ordered the specific performance of contracts to execute work and construction on lands, but it will be found, upon examining such cases, that the party calling for the performance had parted with his land in consideration of such contract, and that it was a practical thing for the Court to decree the performance of the construction contracted to be done.

They rest upon the familiar doctrine that a party who has received a conveyance of land upon the consideration of his agreement to do certain things upon the land conveyed, or upon other lands of the grantor, is estopped, after receiving the benefit of the deed, from refusing to furnish the consideration in cases where it is practicable to furnish such consideration.

Here the State *parted* with nothing. It *received* a valuable tract of land containing timber and granite quarries for $15,000, to be paid in convict labor at fifty cents per day (assuming now, for the purposes of the argument, that the State did contract to furnish the labor), and is seeking to compel the grantor to *receive the consideration*. The reception of this consideration cannot possibly benefit the plaintiff, and it must be presumed that it would not benefit the defendant.

The defendant has never contracted with the State to build the dam and canal. The State and the defendant's assignor may have entertained high hopes of the success of the project for taking the water of the American River, by means of a dam and canal, out of its bed for water-power purposes. But the State did not enter into a contract binding itself to aid such enterprise; neither did the Natoma Company enter into a contract to carry to completion the projected scheme.

It is claimed that the water-power project was an inducement moving the State to the selection of the site near Folsom, rather than the site at Rocklin. We have seen that by the Act of March 30, 1868, the Prison Directors were compelled to select between the two sites, and to determine in "selecting between those sites the place which offers the greatest advantages for prison purposes." One among the many considerations affecting the selection, was the fact that the Natoma Company had projected, and had commenced the building of a dam and canal for water power, believed, perhaps, by everybody at the time, to be feasible. But the State did not secure, and probably could not have secured, a contract for the building of such projected dam and canal.

8.

The alleged contract is personal. It requires the defendant to take the custody of convicts, and the management and working of them. It requires peculiar skill to manage them. It is not reasonably possible for defendant to take these convicts.

9.

The assumption by defendant was by parol, and was between it and the Natoma Company, not between defendant and plaintiff.

10.

The alleged contract does not run with any land, and is, therefore, not binding upon the assignee. There is no burden of this kind imposed upon the land conveyed by the Natoma Company to the defendant.

The defendant holds, merely, an assignment of such right as the Natoma Company had to demand of the State, when the stipulated contingencies should eventuate, the labor of the convicts.

The Uncertainty of the Contract.

It does not appear what kind of a canal is to be built. The only thing definite mentioned is that the State is to have the exclusive use of the first five feet perpendicular fall of water in the canal. How much power it is to have nowhere appears. Whether the canal is to deliver one horse-power or one thousand horse-power, or, whether it is to be constructed of stone, brick, wood, or earth, does not appear. It is to be a canal, and is to be capable of discharging some water over a precipice five feet high, and that is all. Whether the power shall be sufficient to propel a sewing machine or a sawmill, is left altogether to speculation. It is averred that the Natoma Company had "planned and located" the canal referred to in the deed. What that plan was, or where the location was, except that it was along the western line of the donated lands, is not described or even indicated. It is evident, from the use of the words "first fall," that other falls were contemplated. The canal, which the Court is asked to assume the direction of building, should be constructed with an eye to these other falls or powers. Undoubtedy the main purpose of the canal, as contemplated, was for the beneficial uses of the defendant's assignors.

How is the canal, if constructed, to be maintained? If a flood sweeps away the dam, the canal will be destroyed, and who, among those interested in its repair and maintenance, will rebuild or repair? Will the Court compel the defendant to build and maintain a canal which it does not want: to carry into operation a business scheme crudely devised fourteen years ago, and now, wisely it may be, abandoned?

Fry on Specific Performance of Contracts, Sec. 715, says: "Where the object of the contract is a commercial enterprise, the Court is strongly inclined to hold time to be essential, whether the contract be for the purchase of land for such purposes, or more directly for the prosecution of trade. The Court has acted on this principle in a contract respecting lands which had been purchased for the erection of mills."

Aside from the lapse of time, the uncertainties are inherent, and are too numerous and great for a Court of equity to undertake to reduce the supposed contract to that certainty which is necessary to enable it to decree specific performances.

Fry on Spec. Per. Chap. IV.

"It will be obvious that an amount of certainty must be required in the specific performance of a contract in equity greater than that demanded in an action at law for damages." (Fry, Sec. 229.) On the ground of uncertainty, "where there was an agreement in general terms for the construction of a railway, according to the terms of a specification to be prepared by the engineer of the company, for the time being, it was held too vague, obscure, and uncertain to be enforced." (Fry, Sec. 232.)

Respectfully submitted.

A. P. CATLIN,
Attorney for Respondent.

DECISION OF THE SUPREME COURT.

[Title of Cause.]

We are of opinion that the deed from the Water and Mining Company to the State did not impose an obligation upon the company to proceed to the completion of the canal. Therefore, the ruling of the Court below on the demurrer was correct.

Judgment affirmed.

REPORT OF SENATE COMMITTEE

ON

State Prison and Prison Buildings.

REPORT.

Senate Chamber,
Sacramento, January —, 1887.

Mr. President: Your Committee on State Prison and Prison Buildings herewith submit their report of their investigations made at the State Prison of the State of California, at San Quentin, January 22, 1887, as follows, to wit:

Section 1.

We have taken the seventh annual report of the State Board of Prison Directors, and, with information obtained by our own investigation, compared the present condition of the prison and its management with the condition of affairs as shown to exist by the reports of the thirty-fifth and thirty-sixth fiscal years, and we find a result complimentary to the management and advantageous to the State of California, not only from a financial standpoint, but in the general welfare of the prison and in the progress made in the conduct of a penological institution. A careful examination of the records of the Board of Directors will show that the members thereof have rarely been absent from the meetings of the Board, and the vast amount of labor transacted by them, acting, as they do, without compensation, is worthy of commendation.

We found the Warden, Clerk, Captain of the Yard, Guard, Commissary, Physician, and other officers, fully conversant with their duties, and able and willing to give to your committee full and intelligent information regarding the requirements of the prison, and to afford to us an opportunity to make a full and complete investigation.

Section 2. Abolition of Remuneration to Convict Laborers.

We commend the action of the Board of Directors in abolishing the system of remunerating prisoners for their labor at a per diem, and in place thereof substituting a system of rewarding meritorious labor only, by requisitions on the Commissary for certain comforts or materials in addition to those usually allowed; and we recommend a distinct Act, or resolution, forbidding the payment by the officials of a per diem compensation to prisoners for labor. We further doubt the legal rights of the Board to allow such compensation.

Section 3. Female Department.

The addition to the female department, and its management under the supervision of a Matron, has proved efficient, admirably fitted for the purpose named and work to be accomplished.

Section 4. Visitors, and Communication with Prisoners.

The custom of allowing weekly visits to the prisoners, and free communication between visitors and their convict friends, thus affording an opportunity for smuggling contraband articles inside the prison walls, has been modified, and at present visits are allowed but one day during the month, and on Sunday, when care can be taken; and a large wire screen prevents the passage of articles obnoxious to prison discipline. This has resulted in diminishing the opium habit, prevalent among prisoners, and in a great measure preventing what gambling may have existed.

Section 5. Departments of Manufacture Closed.

We find that the various channels of industry at the prison have been, and are being, closed as rapidly as possible, with the exception of the jute and door departments. The harness, tannery, and brick departments are operated only when required for prison purposes. The furniture department is in operation for the purpose only of using up the supply of material now on hand belonging to the State. The Board of Directors have so so ordered. The material on hand referred to is valued approximately at ten thousand dollars. The machinery in this department is owned by the State, and the consequent result of closing the department will be a loss to the State, *i. e.*, diminished value of machinery, and annual earnings. The jute department and door department are in full operation, and are of such importance that they will be specially considered.

Section 6. Door and Sash Department.

The door and sash department has proved to be the most profitable industry in operation at the prison to the State, the net earnings for the thirty-seventh fiscal year being the sum of $23,391 48. The building occupied by the department, in conjunction with the furniture department, cost the sum of $200,000; and the number of convicts detailed for labor in the department is one hundred and sixty. The machinery in use is owned by the California Door Company. From examination and the clear and explicit explanations of Mr. Ranson, Superintendent of the department, the following facts have been ascertained, which are of value in the present consideration of the question of the conflict of prison labor with the interests of free labor, so far as the San Quentin Prison is concerned; this being the only department in the prison causing any discussion of moment on that subject. If it is decided to abolish the department, the California Door Company will undoubtedly remove its machinery elsewhere, and employment be given to about one hundred free laborers, viz.: boys, skilled mechanics, or Chinese, as the company may select; the amount of whose wages would be the sum of $50,000 per annum, the estimate being that one hundred free men will accomplish as much work as the one hundred and sixty convicts. The price of manufactured articles in this State would not be affected. Hence, the consequent advantage to the laboring classes would be the distribution of $50,000 per annum in wages. The loss to the State would be, annual earnings, $23,391 48, and convicts to the number of one hundred and sixty thrown out of employment, unless other plans be adopted as herein suggested, relating to the jute department, and the sum of $160,000 appropriated therefor. Also, the building, valued at $200,000, would be useless, unless converted into a reformatory, or used as a spinning and weaving department for jute manufactory; in either event a sum of not less than $25,000 would be required to remodel the building. It is with great reluctance that your committee approaches this question, because we find ourselves confronted with two serious propositions: the first being a financial injury to the State of California, by cutting off a source of revenue, and rendering valuable property useless. The second being the declaration of principles opposed to convict labor as enumerated in the platforms of the great political parties of this State, upon which the present members of the Legislature were elected, and which are presumed to be the sentiments of the people of this State. Your committee is divided in opinion on this subject, the opinion of the majority being given in subdivision eight of this report.

SECTION 7. JUTE DEPARTMENT.

Under efficient management during the thirty-seventh fiscal year, this department shows a balance sheet in favor of the State, the net earnings being the sum of $14,027 43. It has been satisfactorily demonstrated that this department can be operated with financial success, and in the most unpropitious seasons, under proper management, the chance of loss will be small. It is proposed to double the capacity of the jute plant, for which an appropriation of the sum of $160,000 will be required. This proposition, if consummated, would solve the problem of employment of prisoners, in case the sash and door manufactory is closed. The employment of prison labor in the manufacture of jute goods at present is not, and probably for years to come will not be, in conflict with free labor in this State, and in case the door department be abolished (which, however, your committee does not recommend), the capacity of the jute department should be doubled. It is vitally necessary to the health of the prisoners and maintenance of discipline that the prisoners be employed. The increased capacity of this department would require, on business principles, an increase of the Jute Revolving Fund from $75,000, as asked for, to $100,000, for reasons given by the Board of Directors and Warden Shirley in the report of the last fiscal year. Should the building now used as the door factory be changed and used as an addition to the jute department, the appropriation asked for would not be diminished, because it would require as great a fund to alter said buildings as would be required to build a suitable building for the new plant; the only material saving would be in time and space occupied.

SECTION 8. MAJORITY OPINION OF THE COMMITTEE ON ABROGATION OF SASH AND DOOR DEPARTMENT.

The majority of your committee are in favor of maintaining the sash and door department as it now is, for the time being, and for the reason that arbitrary and sudden action in the matter would result in injury to one body of citizens, which would not be compensated by sufficient immediate benefits to any other body. In other words, the financial loss to the State, which must be met by additional taxation, would impose a general hardship, which the benefits to be derived from the distribution of a portion only of the sum of $50,000 per annum to free white labor would not justify in the present condition of affairs. The change can be made, however, gradually, harmoniously, and we trust that more light may be thrown on the subject, that such action may be taken, ways and means devised to accomplish the desired object in due time, after the immediate and pressing necessities of the prison are considered, and in accord with the interests of all concerned. Seven of your committee agree in the above report; two, Messrs. Murphy and Lenahan, being unavoidably absent on other committee work, have not expressed an opinion.

SECTION 9. SEWERAGE SYSTEM.

The sewerage system at the prison has been economically and systematically perfected, and the only suggestion we can make is that a means be devised to carry the refuse from the place it now has a tendency to deposit, to tide water.

SECTION 10. NEW HOSPITAL.

The new hospital and its management need no comment. It is complete, and answers every requirement.

SECTION 11. ASYLUM FOR INSANE CRIMINALS.

The appropriation asked for to establish a State Asylum for Insane Criminals is reasonable, and the object to be attained one that is much needed, and we believe will result in great benefit to the State, and the Asylums for the Insane at Stockton and Napa, by removing an offensive class from the asylums, decreasing costs of transportation, and solving many vexed questions relating to insanity as a defense for crime. The old hospital, now in a decayed condition, can be repaired at a cost of $2,000, and a third story added, which, with a three story ell and wing, will accommodate one hundred persons, at a cost of $20,000. The management of this institution would be the same as that of the prison. The present accommodations for lunatics at the prison are inadequate, we may say shameful, though necessarily so.

SECTION 12. APPROPRIATIONS FOR GUARD AND FRONT BUILDING.

The buildings at the front of the prison should be removed and replaced by proper accommodations and a fitting structure. The quarters of the officers and the guards are but a mass of rotten structures, unfit for use, and liable to fall from their own weight. A new building is absolutely required. The appropriations asked for these buildings are, respectively, $19,000, and $12,000, being reasonable in amount. No delay should be made in this matter. The floor to the door building should be repaired. The cost will be $2,000.

SECTION 13. BUILDINGS ON STATE LAND.

The land of the State at San Quentin is in many places occupied by buildings erected by former employés of the prison. In many cases, the buildings are in poor condition. It is bad policy to allow these buildings to remain, as they are a source of annoyance to the Directors and officers, and the State land should be under the exclusive control of its officers. We recommend that the Directors enforce the removal of such of these buildings as cannot be purchased for the use of the employés of the prison, at reasonable prices.

SECTION 14. OTHER APPROPRIATIONS ASKED FOR.

An appropriation should be made to replace the brick pavement around the cell buildings by cement pavement. The bricks retain moisture, and cause an unhealthy dampness around the building. This would require about $2,500. Also, the planking of the balconies should be replaced, roofs repaired, and the balcony for the station of the guards in front of the yard should be removed and widened to twelve feet, to enable safe and active operation of the guns in case of necessity. The rear gate building should be replaced by an appropriate structure. Two additional guard posts, with machine guns, have been asked for, which, while not of pressing necessity, would add much to the effectiveness of the guard department.

SECTION 15. APPROPRIATIONS RECOMMENDED.

The appropriations for the following additions, repairs, and purposes are therefore deemed by your committee to be necessary:

Front gate building	$19,000
Offices and guard building	12,000
Rear gate building	1,000
Balcony stairs to cell building	2,000
Roofs to cell building	1,200
Cement pavement	2,500
Old hospital	2,000
Insane department	20,000
Floor in shop building	2,000
Jute Revolving Fund (increased to)	70,000

And the following appropriations in case of removal of sash and door department: Additional jute plant, $160,000; Jute Revolving Fund (increased), $100,000.

The question of an appropriation for the entire support of the prison is considered further on in this report, in section sixteen.

SECTION 16.

We now come to the proposition advanced by the Board of Prison Directors, that the sum of $201,000 annually be appropriated for the maintenance of the prison for the two years following. This sum would be sufficient to pay all the current expenses of the prison, and the net earnings of the various departments would be paid into the State Treasury.

This would leave the management with a fixed and certain sum for operations, and not dependent on the fluctuations of the net earnings fund. We can see no objections to this, as all expenses must be paid by the State ultimately, and our confidence in the management is such that we believe no incentive is necessary to cause them to make the various departments as profitable as the circumstances will allow. We would recommend that the management be given power to transfer amounts from one of the various funds to another in case of necessity, and the occasion will allow such transfer; and a transfer to be made in all cases when required for use of the fund from which any amount shall have been transferred, and we would deem it inadvisable to balance or settle accounts, and pay into the State Treasury the fund for net earnings until the end of the fiscal year.

SECTION 17. SALE OF JUTE GOODS.

Several propositions have been advanced, designed to prevent a monopoly or corner in grain bags, by restricting the manner of sale and distribution of those manufactured at the State Prison. None of the proposed measures would, in our opinion, be practicable to accomplish the object above stated; they would at the same time seriously cripple the financial interests of the jute department. To bind a business of this character by strict, unyielding regulations, contrary to the established rules of business ventures, cannot result else than in serious injury. We suggest that the market prices govern the sale of such products, and with a sufficient revolving fund a stock of grain bags can, by proper management, be carried over to be disposed of during the harvest seasons, to be sold in limited quantities only to actual *bona fide* consumers during those months. Evidence to be furnished by affidavit of the consumer. This would at all times prevent a corner in the market, and enable farmers to purchase by taking the extra trouble. It is idle to expect a farmer to make affidavit, pay extra freight, and cash, except in case of considerable gain or loss; their industry rarely allows such action, and they are dependent on those who advance funds in harvest seasons to a great extent. To be a success, this department must deal with middle men as well as consumers; public policy demands, however, that the latter class be favored. The honest and careful attention of the sale of jute goods by the management of the prison, under the circumstances above stated, would answer all the requirements. Contracts *in futuro* should be strictly prohibited, sales made for cash, and of goods in stock.

Your committee respectfully submit the above report, reserving their report on the Folsom Prison until further examination can be made.

JONES, Chairman.

BIENNIAL REPORT

OF THE

Board of State Harbor Commissioners

FOR THE TWO FISCAL YEARS

Commencing July 1, 1884, and Ending June 30, 1886.

SACRAMENTO, CAL.
STATE OFFICE...........JAMES J. AYERS, SUPT. STATE PRINTING.
1886.

REPORT.

To Hon. GEORGE STONEMAN, *Governor of the State of California:*

In compliance with Sections 332 and 2537 of the Political Code, the Board of State Harbor Commissioners submits its report to you, for the two fiscal years ending June 30, 1886.

The details of the amount of money received and disbursements made by the Board appear in the tabular statements annexed hereto, and the following is a summary of them:

RECEIPTS.

From dockage	$363,066 12
From tolls	343,108 72
From rents and special privileges (including all monthly charges)	259,006 60
From sale of old material	995 80
From dredging	5,904 33
From miscellaneous sources (Oregon Improvement Company, in lieu of structures, fishermen's wharf, etc.)	12,471 57
Total receipts	$984,553 14
Amount drawn from San Francisco Harbor Improvement Fund	666,539 02
Total	$1,651,092 16

DISBURSEMENTS.

Salaries of Commissioners, Secretaries, Engineers, Draughtsman, Attorney, Wharfingers, Collectors, Watchmen, and Clerks in Secretary's office	$196,902 33
Construction, including building of new wharves, sheds, sewers, and roadways; maintenance and repairs of outer half of waterfront streets, old wharves, buildings, roadways, and seawall, and furniture of wharf offices	446,219 14
Wharf cleaning	20,998 15
Dredging	98,934 20
Seawall construction	276,868 72
Filling in and improving seawall lots	48,606 18
Condemnation of land for seawall	28,185 87
Fire account	8,790 00
Amount paid J. S. Wilkins, as directed by the Legislature	450 00
General expenses, including office rent, fuel, stationery, printing, legal expenses, lights at wharves, overpaid revenue returned, and other incidental expenses	16,004 38
Total disbursements	$1,141,958 97
Amount remitted to State Treasurer	509,133 19
	$1,651,092 16

SAN FRANCISCO HARBOR IMPROVEMENT FUND.

Amount in fund July 1, 1884*	$201,968 32
Amount remitted to June 30, 1886	509,133 19
	$711,101 51
Amount drawn out to June 30, 1886	$666,539 02
Amount in fund July 1, 1886	44,562 49
	$711,101 51

---

* The last report showed the amount in the fund, as appeared by the books, to be $221,056 31, but this included $19,087 99, which the books of John S. Gray, the late Secretary of the Board, erroneously showed to have been remitted to the State Treasury.

CONSTRUCTION ACCOUNT.

This account does not embrace the construction of the seawall. It is classed under two heads:

First—Work completed since last report:

Replanking portions of Pacific-Street wharf. Contract prices—furnishing and laying 6x6 inch planking, $22 94 per M. feet, B. M.; furnishing and laying wedged planking, $23 60 per M. feet, B. M.; furnishing and placing stringers (4x12 inch and 10x12 inch), $22 80 per M. feet, B. M.

Work done:

97,575 feet, 6x6 inch planking	$2,238 37
124,020 feet, wedged planking	2,926 87
18,099 feet, stringers	412 65
1,800 feet, old curbing relaid	8 10
Total	$5,585 99

Section 1, of wharves and piers along Berry and Third Streets. Third-Street wharf, 311 feet by 66 feet, a connecting wharf 40 feet by 60 feet, and hay wharf, 540 feet by 132 feet.

Contract price ---- $28,369 00

Section 2, of wharves and piers along Berry and Third Streets. Berry-Street wharf, 458 feet by 59 feet; Berry-Street pier, 610 by 80 feet.

Contract price ---- $29,269 00

Box sewer under Kearny Street, near seawall. This contract was not fully completed, and there was paid thereon but $320 55.

Two sheds and offices, near ferry slips Nos. 1 and 2. Dimensions 22 by 50 feet and 29 by 23 feet.

Contract price ---- $1,240 00

Oil wharf, foot of Center Street, 330 feet long by 50 feet wide, and 400 feet long by 60 feet wide.

Contract price ---- $20,855 00

Tearing up portion of and removing shed from Green-Street wharf. Area torn up, about 13,200 square feet. Shed removed to Section 4, seawall.

Contract price ---- $980 00

Wooden sewer through seawall, near Bay Street—190 feet long.

Contract price ---- $875 00

Embankment along Center Street—580 feet in length, 475 feet of which is 20 feet wide, and 105 feet an average of 35 feet wide.

Contract price ---- $6,000 00

Removing portions of old and new Vallejo-Street wharves, and constructing connecting wharves between new Vallejo and Green-Streets wharves. Area removed, about 17,825 square feet; connecting wharves, 290 feet long by 24 feet wide.

Contract price ---- $2,745 00

Section of Union-Street wharf and wharf between Union and Green-Streets wharves—Union-Street wharf, 140 feet by 80 feet; connecting wharf, 200 feet by 24 feet.

Contract price	$8,697 00

Fishermen's dock and breakwater—Two wharves, one 553 feet long by 24 feet wide; the other, 389 feet long by 24 feet wide, and breakwater 577 feet in length.

Contract price	$19,300 00
Extras	2,682 77
	$21,982 77

Three sheds near ferry slip No. 2; dimensions, 74 feet by 32 feet, 60 feet by 55 feet, and 40 feet by 11½ feet.

Contract price	$1,340 00

Shed on Folsom-Street wharf, 400 feet long by 70 feet wide.

Contract price	$8,970 00
Extras	141 22
	$9,111 22

Removal and rebuilding of portions of ferry slips Nos. 3 and 4.

Work consisted of furnishing, driving, and fastening 369 piles, furnishing, fitting, and fastening 40,000 feet of lumber, and remodeling the hoisting gear.

Contract price	$11,445 00

Connection of Green-Street wharf with Seawall wharf, and removal of temporary wharf between Green and Union-Streets wharves—Connection built, 80 feet by 30 feet; connection removed, 200 feet by 30 feet.

Contract price	$800 00

Two-story building on Third Street, near its junction with Berry-Street wharf—34 feet by 22 feet and 28½ feet high.

Contract price	$1,538 00

Pier between Folsom and Harrison-Streets piers, 614 feet long by 80 feet wide.

Contract price	$22,100 00
Extras	742 44
	$22,842 44

Connection of Vallejo-Street wharf with Seawall wharf, and removal of temporary wharf between Vallejo and Green-Streets wharves. Structure built, 200 feet by 24 feet; structure removed, 30 feet by 80 feet.

Contract price	$962 00

Pier between Broadway and Vallejo-Street piers, 591 feet long by 100 feet wide.

Contract price	$22,947 00

Covering a space on the Seawall wharf, opposite fishermen's slip, with asphaltum pavement. Area covered, 8,101 square feet.

Contract price, 10 cents per square foot	$810 10

Bridge to connect Vallejo-Street wharf with Section 5 of seawall. Temporary structure of old material, 30 feet by 24 feet.

Contract price	$165 00

Repairing hoisting gear, etc., of ferry slip No. 4, redriving piles for foundation, and renewing gallows frame.

Contract price	$650 00
Less deduction of	15 00
Amount paid	$635 00

Box sewer through Section 5 of seawall, 275 feet long, 3 feet by 5 feet inside.

Contract price, $4 10 per linear foot	$1,127 50

Removing two sheds from Broadway wharf; one 465 feet by 54½ feet, taken down and material stored; the other 160 feet by 40 feet, removed to Harrison-Street wharf.

Contract price	$1,200 00

Construction of temporary roadway between Pacific-Street and Broadway wharves; removal of same, and removal of portion of Broadway wharf.

Temporary roadway, 200 feet by 24 feet; portion of Broadway wharf removed, 520 feet by 110 feet.

In payment for said work the contractor had all the old material removed.

Car ferry slip at foot of Second Street.

Contract price	$27,341 00
Extras	1,593 67
Total	$28,934 67

Approach to car ferry slip, at foot of Second Street. Stone and earth embankment, 230 feet long, with an average width of 63 feet. Contract prices: Stone, 97 cents per ton of 2,240 pounds, and earth, 25 cents per cubic yard. Material used:

Stone, 6,845.93 tons	$6,640 55
Earth, 16,736.91 cubic yards	4,184 23
Total	$10,824 78

Repairing fishermen's market. Shingling, painting, and whitewashing and repairing woodwork.

Contract price	$514 00.

Removal of portion of Pacific-Street wharf, and construction of connecting roadway between Pacific and East-Streets wharves. Area of Pacific-Street wharf removed, about 10,590 square feet; connecting roadway built, 210 feet by 30 feet.

Contract price	$2,837 00

Shed on Broadway wharf No. 2, 577 feet long by 90 feet wide.

Contract price	$7,634 00

Gates at Third and Berry-Streets wharves, and oil works wharf.

Contract price	$325 00

Office and freight room under shed on Folsom-Street pier.

Contract price $210 00

Cattle wharf at foot of Second Street, triangular in shape, 190 feet by 174 feet by 260 feet.

Contract price $2,758 00

Connecting Broadway wharf No. 1 with the Seawall wharf, 100 feet by 110 feet.

Contract price $3,187 00

Box sewer along Broadway through the Seawall thoroughfare, 446 feet 6 inches in length, 4 feet by 6 feet inside.

Contract price, $3 98 per linear foot $1,777 47

Second—Work contracted for but not completed June 30, 1886:

Connecting Pacific-Street wharf with wharf along Section 6 of seawall.

Contract price, $850 .... Nothing paid.

SEAWALL.

Section 5. This section was in process of construction at date of the Board's last report. It extends southerly from section four a distance of one thousand feet. It was brought to grade on March 13, 1885, and was there maintained by the contractor for a period of three months, when it was accepted and final payment made.

There was paid for this work as follows:

Stone, 119,025.86 tons, at 52 cents per ton of 2,240 pounds	$61,893 44
Earth, 272,499.2 cubic yards, at 29 cents per cubic yard	79,024 77
Wharf	28,975 36
Total cost	$169,893 57

Of this amount $5,777 64 was paid prior to the last report, and the balance, $164,118 19, was paid since.

The estimates for the stone and earth for this section were based upon the amounts used in the construction of sections one to four, and they were in excess of the actual amounts used: Stone, $44\frac{9}{10}$ per cent, and earth $4\frac{38}{100}$ per cent.

Section 6. On the sixth day of January, 1885, the Board, acting in conjunction with the Governor of the State and the Mayor of the City and County of San Francisco, awarded a contract for the construction of Section 6 to the San Francisco Bridge Company.

This section extends southerly from Section 5 a distance of 800 feet.

Seven bids were received, as follows:

NAME OF BIDDER.	Rock per Ton.	Earth per Cubic Yard.	Wharf.	Total.
San Francisco Bridge Company	$0 63½	$0 34½	$15,000 00	$123,506 50
David Finley	63	39	19,700 00	133,543 00
J. S. Tibbals	69	39	17,160 00	137,343 00
California Bridge Company	65	39	23,000 00	139,623 00
Jas. McCudden	80	35	22,000 00	145,945 00
John Kelso and John Hackett	78	41	24,000 00	155,207 00
B. McMahon	77	40	28,000 00	156,810 00

The structure was brought to grade April 3, 1886, and the contract specified that it shall be there maintained by the contractor for the period of three months.

There was used in the construction of this section:

Stone, 89,704.49 tons of 2,240 pounds	$56,962 33
Earth, 159,277.7 cubic yards	54,950 80
Wharf	14,866 60
Total	$126,779 73

The estimates for the stone and earth for this section were based upon the amounts used in the construction of Section 5, and they were substantially correct, the actual quantity of stone used being less than one per cent, and the actual amount of earth used but $5\frac{69}{100}$ per cent in excess of the estimated quantities.

There has been paid upon this contract to date $95,064 63, and the balance thereof, $31,715 10, falls due July 3, 1886.

COST OF SEAWALL.

The cost of constructing the several sections of the seawall and thoroughfare is as follows:

Section A, 561 feet long, $152 61 per linear feet	$85,614 53
Section 1, 1,000 feet long, $165 63 per linear feet	165,631 40
Section 2, 1,000 feet long, $167 50 per linear feet	167,504 09
Section 3, 1,000 feet long, $235 50 per linear feet	235,049 51
Section 4, 1,000 feet long, $240 87 per linear feet	240,872 01
Section 5, 1,000 feet long, $169 89 per linear feet	169,893 57
Section 6, 800 feet long, $158 47 per linear feet	126,779 73
Total cost of 6,361 feet (average cost per linear foot, $187 28)	$1,191,344 86

REPAIRS ON SECTIONS ONE AND TWO, SEAWALL.

The stone wall on the waterfront side of Sections 1 and 2 was badly damaged by the great storm of December, 1884. The Engineer was directed to prepare plans and specifications for and make estimates of the cost of refacing these sections with stone.

A contract was awarded in accordance with these plans and specifications at the following prices: For furnishing and laying large stone, 85 cents per ton; for furnishing and laying small stone, 80 cents per ton; and for laying stone furnished by the Board, 45 cents per ton.

There has been furnished and laid:

Large stone—3,799.31 tons	$3,229 40
Small stone—5,097.76 tons	4,078 20
Total	$7,307 60

The contract provides for payments of 75 per cent upon monthly estimates, and in accordance therewith there has been paid $5,480 72, and retained $1,826 88, to be paid upon final acceptance of the work.

The estimates for the material for this work were, large stone, 8,000 tons, which, at the contract price, would be $6,800; small stone, 7,000 tons, which, at the contract price, would be $5,600, making a total of $13,600.

It is now evident that the slope of these sections was too steep and the rock used too small. The refacing is now being done with large stone. The work has been somewhat delayed, for the reason that these sections are in constant use, and the difficulty of procuring stone of sufficient size.

IMPROVING SEAWALL LOTS.

The construction of the seawall, and the extension of streets thereto, has formed blocks and parts of blocks, which embrace an area of 577,397 square feet, which is equal to 30½ 50-vara lots.

Since the last report the Board has expended $48,606 18 in filling in, grading, sewering, and otherwise improving this property and the streets adjacent thereto.

PAVING ROADWAY

On Sections 3 and 4, and part of Section 2 of the seawall.

On June 30, 1885, a contract was made for paving with basalt blocks a roadway on Sections 3 and 4, and part of Section 2 of the seawall, 2,250 feet in length and 40 feet in width.

The contract prices were as follows: Stone paving, 16½ cents per square foot; granite curbing, 70 cents per linear foot; wooden curbing, 15 cents per linear foot; and drains at $30 each.

There was put down and paid for:

89,310 square feet stone paving	$14,736 15
2.242.25 feet granite curbing	1,569 58
2,304.75 feet wooden curbing	345 71
10 drains	300 00
Total	$16,951 44

PRIVATE PROPERTY TAKEN FOR PUBLIC USE.

In building the seawall and thoroughfare it became necessary to use for such purpose a portion of the block bounded by Jackson, Drumm, Pacific, and East Streets, which portion belonged to Robert Dunsmuir, George Leviston, John A. Rosenbohm, and Alice A. Donzel.

An action to condemn the same was brought, and judgments and final orders of condemnation were rendered against all the above named owners.

The Board paid, on account thereof, the value of the land taken	$26,750 00
And for certificate of title, expert testimony, reporter's fees, jury's fees, and other costs	1,435 87
Making a total of	$28,185 87

DREDGING.

During the last two fiscal years the number of cubic yards of material dredged was 1,359,600, at a cost of $98,934 20, or seven and fifty-five one hundredths cents per cubic yard.

The amount of material dredged was in excess of that for the two fiscal years immediately preceding, and the cost per cubic yard was less.

Each year it is found necessary to dredge to a greater depth in the various slips, for the reason of the increasing size and draft of the vessels coming to this port.

The details of the work performed by this department are found in the annexed tabular statements.

WATERFRONT STREETS.

The Board expressed its views on this subject at some length in its last report. The portion of these streets which it is the Board's duty to maintain has been kept and is in excellent condition, while that portion that it is the duty of the City and County of San Francisco and the owners of the property abutting thereon to maintain, has been and is out of repair, and a considerable portion thereof is utterly impassable.

EXPIRATION OF LEASES.

By Act of Legislature approved August 4, 1870, the Board was authorized to lease for a period of fifteen years a portion of the waterfront to the Western Pacific Railroad Company. No lease was ever executed, but the company went into possession according to the terms of said Act, and they and their successors, the Central Pacific Railroad Company and Southern Pacific Company, continued in and held possession of said property for the period prescribed therein. As provided in the Act, the railroad companies erected a wharf thereon, and paid to the Board the same rate of tolls upon the merchandise and live stock passing over it as was collected by the Board on the other wharves under its jurisdiction.

On August 5, 1885, the fifteen years expired, and the Board reëntered into possession of the property. Since that time the Board has made improvements on the property, consisting of a car ferry-slip, at a cost of $28,934 67, an approach to the same, of stone and earth, 230 feet long with an average width of 63 feet, at a cost of $10,824 78, and a cattle wharf, triangular in shape, 190 feet by 174 feet by 260 feet, at a cost of $2,758.

The Southern Pacific Company have the exclusive use of these improvements, and they pay therefor the sum of $1,600 per month.

In addition to this, the railroad company, as heretofore, pays to the Board tolls upon all merchandise and live stock passing over this wharf at the regular rates, which amounts to about $3,300 per month.

On November 17, 1865, the Board leased to A. W. McPherson and others a portion of the waterfront, for the term of twenty years. This lease was, by consent of the Board, assigned to the Union Lumber Association, and subsequently to the Oregon Improvement Company, which last named company was in possession of the property at the expiration of the lease, November 17, 1885. Under the terms of this lease the lessees were required to construct the outer half, or seventy-five feet in width, of the streets bordering on the waterfront, and embraced within the lease, by piling, capping, and planking the same in the customary way, and to surrender the same to the Board at the expiration of the term of the lease.

This covenant was not fully complied with, but instead thereof the lessees utilized the space by constructing piers thereon.

The property was in this condition at the expiration of the lease, and the Board, believing that this was the proper way to use this property, and that it would be disadvantageous to the State if these structures were completed as provided for in the lease, because it would materially reduce the space for berths, proposed to the lessees that they would accept from them, in coin, the amount that they would be required to expend to comply with this covenant. This proposition was believed by the Board to be for the best interests of the State, and was accepted by the lessees, and the amount fixed upon, $6,716, was subsequently paid by them to the Board.

RATES OF DOCKAGE AND TOLLS.

During the two fiscal years the Board made a marked reduction in the rates of tolls and dockage, amounting to about 20 per cent in dockage, and in some instances to 50 per cent in tolls, and entirely removed tolls on wheat and flour shipped from this port. It also reduced the dockage on river steamers, to place them upon as favorable a footing with respect to dockage as ocean steamers.

Notwithstanding these reductions, which went into effect July 1, 1885, there has been no substantial falling off in the revenue.

This arises partly from the fact that there has been a material increase in the amounts received for the exclusive use of berths and special privileges, and from the reversion to the Board of property which had long been held under leases, and which now yields a much larger income.

MODE OF COLLECTING CHARGES ON GOODS.

The system of collecting the revenue has frequently been referred to in former reports.

In its last report the Board said:

> That it should be condemned on account of the expense that is inseparable from it, does not admit of question. But the expense of this mode of collecting revenue is not the only objection to which it is obnoxious. If collectors should be disposed to act dishonestly no effective checks can be employed to prevent their embezzling the public funds; nor, if they should be guilty of peculations, would it be easy to detect them. And even if we could secure satisfactory guarantees that all collectors would be scrupulously honest in the discharge of their official duties, still they would be liable to make grave mistakes, through want of judgment in estimating quantities, whether by weight or measure, which would cause the law for the collection of revenue to operate unequally and consequently unjustly.

Entertaining these views, the Board prepared a bill changing the system. It was introduced into the Senate, but no action was taken thereon. During the two fiscal years—

There was collected for tolls	$343,108 72
Deduct amount paid by R. R. Co.	79,070 70
Amount collected by Collectors	$264,038 02
The amount of salaries paid Collectors was	$70,996 24

This shows that the cost of collecting the tolls, by Collectors, was $26\frac{8}{10}$ per cent of the amount collected.

GOVERNOR IRWIN.

On the sixteenth day of March, 1886, the honorable President of this Board, William Irwin, died. We bear witness to his indefatigable industry, his integrity, and his zeal in the discharge of his duties as President of the Board.

SECRETARY.

On the nineteenth day of April, 1886, J. C. L. Wadsworth resigned as Secretary of the Board, to take effect May first, and on the twenty-ninth day of April, 1886, George Tilghman was appointed his successor.

RECOMMENDATIONS.

The Board begs leave to respectfully submit the following recommendations:

The amount that the Board is allowed to expend monthly for urgent repairs upon the property and streets under its jurisdiction, without entering into contract, is but $4,000. This amount is entirely inadequate.

Piles and planking need constant renewal, and the area of wharves and sheds is increasing. Since our former report we have added about 265,000 square feet to this area. The Board, therefore, recommend that the law be so changed that the amount which it can so expend be increased to not less than $6,000 per month.

Under the Act of 1883, the Secretary is made "responsible for all moneys paid into the office." The amount so paid averages over $40,000 per month, while the amount of his official bond is but $20,000. The Board recommends the same be fixed at $50,000, and that the official bond of the Assistant Secretary be increased from its present amount of $10,000, to $20,000.

The Board is now "authorized to assign berths and slips for the exclusive use of sea-going steamers, ferryboats, and steamboats," and charge for such exclusive use irrespective of their tonnage or the number of days the berth is occupied. It considers this a wise provision, but no reason exists why the power should be limited to sea-going steamers, ferryboats, and steamboats. It is therefore urged that the law be changed to confer like powers on the Board as respects sailing vessels and watercraft of every description.

It has already been stated that property equal in the aggregate to 30½ 50-vara lots has been created by the construction of the seawall on the line authorized by the Act of 1876. Under the existing law these lots are set apart and dedicated to public uses *as open spaces*, to be used in connection with the seawell and for the same purposes, and it is made the duty of the Board to put them in condition for such use.

It is difficult to maintain these lots as open spaces. Teams and people cross them in every direction, and they are made a dumping ground for the refuse matter of the city. The sand from those filled in is blown on to the seawall roadway, and this vast amount of valuable property thus becomes of no practical benefit to the people of the State.

The Board sees no good reason why they should remain as *open spaces*. It believes that it should have the power to inclose them, and to grant their use during the pleasure of the Board for the purpose of facilitating the commerce of the port.

Respectfully submitted.

FRANK McCOPPIN,
A. C. PAULSELL,
JOHN H. WISE,
Commissioners.

BOARD OF STATE HARBOR COMMISSIONERS' BIENNIAL REPORT.

Showing the Receipts and Disbursements for the Two Fiscal Years ending June 30, 1886.

RECEIPTS.	1884–5.	1885–6.	Totals.
Section 1, seawall wharf	$8,684 98	$9,020 42	$17,705 40
Section 2, seawall wharf	8,596 30	9,308 19	17,904 49
Section 3, seawall wharf	9,964 77	4,191 80	14,156 57
Section 4, seawall wharf	14,282 46	9,838 85	24,121 31
Fishermen's wharf	2,661 75	3,512 85	6,174 60
Union-Street wharf	6,685 56	9,605 10	16,290 66
Green-Street wharf	12,855 38	11,329 45	24,184 83
Vallejo-Street wharf	14,436 46	10,924 40	25,360 86
Broadway wharves Nos. 1 and 2	23,755 77	17,367 45	41,123 22
Pacific-Street wharf	26,195 45	17,122 90	43,318 35
Jackson-Street wharf	24,113 35	19,331 40	43,444 75
Washington-Street wharf	19,876 72	17,565 30	37,442 02
Ferries (Slips 1 to 8, inclusive)	88,796 75	81,598 80	170,395 55
Mission-Street wharf	21,626 30	15,531 00	37,157 30
Mission-Street wharf No. 2	19,871 63	17,897 50	37,769 13
Howard-Street wharf	15,637 71	13,486 00	29,123 71
Howard-Street wharf No. 2	15,096 22	12,610 05	27,706 27
Howard-Street wharf No. 3	13,507 97	12,977 75	26,485 72
Folsom-Street wharves Nos. 1 and 2	15,815 82	21,820 80	37,636 62
Harrison and Spear-Streets wharves	31,870 44	26,009 40	57,879 84
Main-Street wharf	13,886 42	12,307 30	26,193 72
Beale-Street wharf	....	12,352 73	12,352 73
Third and Berry-Streets wharves	10,720 20	17,491 19	28,211 39
Channel-Street wharf	4,541 85	3,565 10	8,106 95
Center-Street wharf	3,000 00	4,800 00	7,800 00
Pacific Mail Steamship Company	15,000 00	15,000 00	30,000 00
Merchants' Dry Dock	4,500 00	4,500 00	9,000 00
Southern Pacific Company (rent)	1,433 35	13,700 00	15,133 35
Southern Pacific Company (tolls)	38,692 94	40,377 76	79,070 70
Oregon Improvement Company	7,200 00	2,740 00	9,940 00
Oregon Improvement Company (in lieu of structures)	....	6,716 00	6,716 00
United States Barge Office	280 00	240 00	520 00
Second Street (Whitelaw)	70 00	155 00	225 00
Space for scales	861 00	966 00	1,827 00
Space for lumber	3,036 00	3,036 00	6,072 00
Seawall property account	35 00	770 00	805 00
Dredger No. 1 (received for dredging)	1,200 00	594 17	1,794 17
Dredger No. 1 (sale of old material)	43 05	20 00	63 05
Dredger No. 2 (received for dredging)	1,596 00	2,514 16	4,110 16
Tug "Gov. Irwin" (sale of old material)	22 00	....	22 00
Urgent repairs (sale of old material)	165 00	680 75	845 75
Urgent repairs (received from vessels—damages to wharves)	22 50	189 47	211 97
Expense account (sale of old horse)	25 00	....	25 00
Expense account (amount expended removing goods, returned)	....	26 00	26 00
Construction account (sale of old anchor)	40 00	....	40 00
Profit and loss (excess of cash over balance)	....	60 00	60 00
	$500,702 10	$483,851 04	$984,553 14
San Francisco Harbor Improvement Fund—amount drawn	376,700 41	289,838 61	666,539 02
			$1,651,092 16

RECEIPTS AND DISBURSEMENTS—Continued.

DISBURSEMENTS.	1884–5.	1885–6.	Totals.
Salaries of Commissioners and Secretaries	$13,200 00	$13,075 00	$26,275 00
Salaries of Wharfingers, Collectors, and Watchmen	68,449 52	70,223 25	138,672 77
Salary of Attorney	2,400 00	2,400 00	4,800 00
Salaries of Chief Engineer, Assistant, and Draughtsman	6,667 46	6,600 00	13,267 46
Salaries of Chief Wharfinger and Assistant	4,800 00	4,800 00	9,600 00
Expense account (rent, printing, stationery, clerks in Secretary's office, keeping horses, etc.)	8,822 28	8,110 45	16,932 73
Urgent repairs	57,694 22	91,915 56	149,609 78
Construction account	190,082 53	103,972 35	294,054 88
Dredger No. 1	14,087 41	13,043 41	27,130 82
Dredger No. 2	14,716 10	14,290 15	29,006 25
Tug "Anasha"	9,346 01	8,235 35	17,581 36
Tug "Gov. Irwin"	14,109 28	11,106 49	25,215 77
Fire account	4,470 00	4,320 00	8,790 00
Cleaning wharves	10,049 50	10,948 65	20,998 15
Legal expense	13 00	99 30	112 30
Seawall account	187,231 89	89,636 83	276,868 72
Wharf offices and furniture	830 36	1,032 15	1,862 51
Harbormasters' expense account (notices to remove vessels in the stream)	165 50	123 50	289 00
Overpaid dockage returned	296 74	120 60	417 34
Overpaid tolls returned	44 45	30 00	74 45
Overpaid rent returned	62 50	13 80	76 30
Moving vessels	170 65	....	170 65
Profit and loss (damages to vessels)	13 50	4 00	17 50
Lights at wharves	1,052 54	1,148 67	2,201 21
Profit and loss (amount paid J. S. Wilkins for damages to horse, as per Act of Legislature)	450 00	....	450 00
Pile driving	....	691 97	691 97
Seawall property account	8,400 06	40,206 12	48,606 18
Seawall account (condemnation of land and expense relating thereto)	75 00	28,110 87	28,185 87
	$617,700 50	$524,258 47	$1,141,958 97
San Francisco Harbor Improvement Fund—amount remitted	259,702 01	249,431 18	509,133 19
			$1,651,092 16

STATEMENT OF THE AMOUNT PAID ON ACCOUNT OF CONSTRUCTION, FOR THE TWO FISCAL YEARS ENDING JUNE 30, 1886.

Date.	To Whom Paid.	On Account of.	Amount.
1884.			
July 3	E. O. Johnson	Services assisting Engineer	$37 50
July 9	Thos. Ryan	Services as laborer	75 00
July 11	Chas. G. Shaefer	Paint	40 24
July 11	P. J. Thomas	Printing specifications	22 50
July 14	San Francisco Gaslight Co.	Coal tar	7 60
July 16	Examiner Publishing Co.	Advertising for proposals	36 00
July 18	Alta California Pub. Co.	Advertising for proposals	36 00
Aug. 13	Geo. H. Rogers	Locating crossing	20 00
Aug. 13	E. H. Kittredge & Co.	Windows	2 60
Aug. 21	Alta California Pub. Co.	Advertising for proposals	116 50
Aug. 22	P. J. Thomas	Printing specifications	55 00
Aug. 22	Examiner Publishing Co.	Advertising for proposals	87 00
Aug. 25	Daily Report	Advertising for proposals	48 00
Aug. 27	E. O. Johnson	Services assisting Engineer	42 00
Aug. 27	P. R. Thomson	Services assisting Engineer	48 00
Aug. 27	James Gafney	Box sewer under Kearny Street, near seawall	320 55
Aug. 29	Thos. Thomson	Moving fence	175 00
Aug. 30	B. Donnelly	Services supervising construction	120 00
Sept. 4	Thos. Ryan	Services as laborer	81 00
Sept. 5	B. McMahon	Third and Berry-Streets wharves	13,052 63
Sept. 5	B. McMahon	Third and Berry-Streets wharves	2,164 79
Sept. 12	Thos. Thomson	Foot blocks for shed	60 00
Sept. 12	Jas. D. Schuyler	Tearing up portion of Green-Street wharf	980 00
Sept. 15	San Francisco Gaslight Co.	Coal tar	23 20
Sept. 15	Examiner Publishing Co.	Advertising for proposals	33 00
Sept. 19	V. P. Bovee	Services supervising construction	51 97
Sept. 19	B. McMahon	Use of pile driver	30 00
Sept. 19	David Finley	Slip at Section 4 seawall	60 00
Sept. 22	P. J. Thomas	Printing specifications	10 00
Sept. 24	A. E. Buckman	Sewer at foot of Powell Street	1,327 81
Sept. 25	Thos. H. Day	Sheds near ferry slips 1 and 2	1,240 00
Sept. 25	E. O. Johnson	Services assisting Engineer	37 50
Sept. 26	B. Donnelly	Services supervising construction	120 00
Sept. 30	P. J. Tannian	Services supervising construction	80 00
Sept. 30	P. R. Thompson	Services assisting Engineer	66 00
Sept. 30	Thos. Ryan	Services as laborer	121 50
Oct. 6	Alta California Pub. Co.	Advertising for proposals	171 50
Oct. 6	Examiner Publishing Co.	Advertising for proposals	122 50
Oct. 8	Daily Report	Advertising for proposals	65 00
Oct. 9	David Finley	Center-Street wharf	5,089 50
Oct. 10	John Kelso	Embankment along Center Street	2,475 00
Oct. 10	John Pierce	Hauling coal tar	2 00
Oct. 11	C. L. Crisman	Sewer through seawall	875 00
Oct. 13	Holbrook, Merrill & Stetson	Dipper	4 50
Oct. 15	San Francisco Gaslight Co.	Coal tar	88 00
Oct. 23	Alta California Pub. Co.	Advertising for proposals	93 00
Oct. 23	Examiner Publishing Co.	Advertising for proposals	92 75
Oct. 23	E. O. Johnson	Services assisting Engineer	43 50
Oct. 24	B. McMahon	Third and Berry-Streets wharves	15,316 37
Oct. 28	P. J. Thomas	Printing specifications	71 00
Oct. 28	Jas. Gallup & Co.	Hardware	75
Oct. 29	Thos. Ryan	Services as laborer	105 00
Oct. 30	Payroll	Supervisors of construction	204 00
Oct. 31	P. R. Thompson	Services assisting Engineer	63 00
Nov. 6	John P. Sheldon	Connecting wharves along seawall	2,745 00
Nov. 12	P. J. Thomas	Printing specifications	27 00
Nov. 12	David Finley	Center-Street wharf	15,765 50
Nov. 12	David Finley	Connecting Union Street and seawall wharves, etc.	8,697 00
Nov. 19	P. J. Tannian	Services supervising construction	64 00
Nov. 25	P. R. Thompson	Services assisting Engineer	67 50
		Amount carried forward	$73,077 26

Statement of the Amount Paid on Account of Construction—Continued.

Date.	To Whom Paid.	On Account of.	Amount.
1884.		Amount brought forward	$73,077 26
Nov. 26	W. L. Farrell	Mast for fender	26 00
Nov. 26	P. H. Farnham & Co.	Two spars for fenders	45 00
Nov. 26	John Kelso	Embankment along Center Street	3,525 00
Nov. 26	Thos. Ryan	Services as laborer	105 00
Nov. 26	B. McMahon	Third and Berry-Streets wharves	27,104 21
Nov. 26	Thos. H. Day	Sheds near ferry slip No. 2	1,340 00
Nov. 28	D. R. Coleman	Smithwork	4 35
Nov. 28	T. P. H. Whitelaw	Chain for buoy	38 24
Nov. 28	Dunham, Carrigan & Co.	Hardware	1 37
Nov. 28	H. C. Tickner	Services supervising construction	128 00
Nov. 29	Chas. H. Kungle	Services supervising construction	60 00
Nov. 29	B. Donnelly	Services supervising construction	108 00
Nov. 29	Renton, Holmes & Co.	Lumber	16 60
Dec. 10	B. McMahon	Connecting Third Street and brick wharves	1,094 87
Dec. 11	Thos. H. Day	Skylights, etc., at ferry slips	65 00
Dec. 13	Castner & McLellan	Buoy	22 00
Dec. 13	Geo. W. Watson	Reconstruction of ferry slips Nos. 3 and 4	5,150 25
Dec. 15	Wm. Deacon	Fitting sounding pipe	75
Dec. 17	S. F. Gaslight Co.	Coal tar	81 00
Dec. 26	Renton, Holmes & Co.	Lumber	79 63
Dec. 29	Wm. Deacon	Smithwork	72 75
Dec. 29	Thompson Bros.	Cast-iron sinker	50 75
Dec. 29	Holbrook, M. & Stetson	Tar boiler	87 00
Dec. 31	H. C. Tickner	Services supervising construction	88 00
Dec. 31	C. H. Kungle	Services supervising construction	40 00
Dec. 31	Dunham, Carrigan & Co.	Hardware	2 10
1885.			
Jan. 6	P. R. Thompson	Services assisting Engineer	84 00
Jan. 7	Thos. Ryan	Services as laborer	90 00
Jan. 13	Paraffine Paint Co.	Paraffine paint	4 50
Jan. 16	David Finley	Connecting Green-Street wharf with seawall, etc.	800 00
Jan. 20	Daily Report	Advertising for proposals	12 50
Jan. 21	Alta California Pub. Co.	Advertising for proposals	17 50
Jan. 21	Examiner Publishing Co.	Advertising for proposals	17 50
Jan. 23	Sullivan & Ravekes	Stucco brush	1 50
Jan. 24	W. L. Richardson	Connecting old Green-Street wharf and seawall	420 00
Jan. 29	P. R. Thompson	Services assisting Engineer	24 00
Jan. 30	Examiner Publishing Co.	Advertising for proposals	49 00
Jan. 30	E. O. Johnson	Services assisting Engineer	30 00
Jan. 31	F. H. Kellogg	Asphaltum pavement, ferry landing	378 35
Jan. 31	Alta California Pub. Co.	Advertising for proposals	49 00
Jan. 31	Chas. H. Kungle	Services supervising construction	60 00
Jan. 31	H. Weber	Hauling	2 50
Jan. 31	Thos. Ryan	Services as laborer	93 00
Feb. 6	H. C. Tickner	Services supervising construction	96 00
Feb. 7	Thos. H. Day	Two-story building	1,538 00
Feb. 10	Thos. Thomson	Shed on Folsom-Street pier	3,702 60
Feb. 11	Ætna Iron Works	Iron work	335 35
Feb. 11	Geo. W. Watson	Reconstructing ferry slips 3 and 4	6,294 75
Feb. 14	P. J. Thomas	Printing specifications	27 50
Feb. 14	Thos. H. Day	Moving Wharfinger's office	30 00
Feb. 20	Alta California Pub. Co.	Advertising for proposals	14 00
Feb. 25	E. O. Johnson	Services assisting Engineer	29 00
Feb. 25	Examiner Publishing Co.	Advertising for proposals	14 00
Mar. 4	Thos. Ryan	Services as laborer	78 00
Mar. 5	H. C. Tickner	Services supervising construction	108 00
Mar. 5	C. H. Kungle	Services supervising construction	108 00
Mar. 6	W. L. Richardson	Use of pile-driver	30 00
Mar. 6	Jas. Alexander	Fuel for tar pot	11 00
Mar. 11	S. Browell	Patent chimney	40 00
Mar. 11	San Francisco Gaslight Co.	Coal tar	80 00
		Amount carried forward	$127,082 68

Statement of the Amount Paid on Account of Construction—Continued.

Date.	To Whom Paid.	On Account of.	Amount.
1885.		Amount brought forward	$127,082 68
Mar. 11.	P. R. Thompson	Services assisting Engineer	69 00
Mar. 11.	H. Weber	Hauling	10 50
Mar. 11.	Thos. Thomson	Shed on Folsom-Street pier	2,823 08
Mar. 11.	W. L. Richardson	Extension of work on contract for reconstructing ferry slips 3 and 4	1,123 12
Mar. 13.	Ætna Iron Works	Iron work	77 10
Mar. 14.	B. McMahon	Fishermen's wharf and breakwater	19,300 00
Mar. 14.	P. J. Thomas	Printing specifications	27 50
Mar. 18.	Alta California Pub. Co.	Advertising for proposals	35 75
Mar. 23	Examiner Publishing Co.	Advertising for proposals	35 75
Mar. 25.	E. O. Johnson	Services assisting Engineer	37 50
Mar. 25.	Thos. Thomson	Shed on Folsom-Street pier	2,444 32
Mar. 25.	M. Hodge	Hauling	3 00
Mar. 28.	P. R. Thompson	Services assisting Engineer	37 50
Mar. 31.	Alta California Pub. Co.	Advertising for proposals	10 00
Mar. 31.	Thomas Thomson	Shed on Folsom-Street pier	141 22
Mar. 31.	Thomas Thomson	Pier between Folsom and Harrison-Streets piers	5,635 50
Mar. 31.	F. H. Kellogg	Asphaltum pavement on seawall wharf	607 58
April 4.	G. B. De Ferrari	Lettering signs	15 00
April 4.	C. H. Kungle	Services supervising construction	8 00
April 6.	H. C. Tickner	Services supervising construction	68 00
April 6.	Thomas Ryan	Services as laborer	75 00
April 8.	C. L. Crisman	Bridge between Vallejo-Street wharf and seawall	165 00
April 13.	P. J. Thomas	Printing specifications	23 50
April 17.	Alta California Pub. Co.	Advertising for proposals	17 50
April 17.	S. F. Bridge Co.	Connecting Vallejo-Street wharf with seawall, etc.	962 00
April 18.	Examiner Publishing Co.	Advertising for proposals	27 50
April 25.	H. Weber	Hauling	9 00
April 27.	B. McMahon	Fishermen's dock and breakwater	2,682 77
April 27.	James Gallup & Co.	Hardware	8 71
April 28.	Thompson Brothers	Cast-iron sinker	49 00
April 28.	S. F. Gaslight Co.	Coal tar	40 00
April 29.	P. R. Thompson	Services assisting Engineer	30 00
April 30.	E. O. Johnson	Services assisting Engineer	30 00
April 30.	Thomas Ryan	Services as laborer	78 00
April 30.	Alta California Pub. Co.	Advertising for proposals	40 25
May 6.	Thomas Thomson	Pier between Folsom and Harrison-Streets piers	9,282 00
May 7.	H. C. Tickner	Services supervising construction	88 00
May 13.	C. L. Crisman	Steps off Section 4 seawall, etc.	319 56
May 15.	J. S. Tibbals	Sewer through Section 5 seawall	538 13
May 20.	Thomas Thomson	Sounding with pile-driver	60 00
May 22.	James Alexander	Fuel for tar pot	11 00
May 27.	P. R. Thomson	Services assisting Engineer	52 50
May 28.	Renton Coal Co.	Fuel for tar pot	10 50
May 28.	S. F. Gaslight Co.	Coal tar	40 00
May 28.	E. O. Johnson	Services assisting Engineer	28 50
May 29.	Thomas Thomson	Pier between Folsom and Harrison-Streets piers	7,182 50
May 29.	Charles H. Kungle	Services supervising construction	16 00
May 29.	M. J. Crowley	Services supervising construction	120 00
May 29.	H. C. Tickner	Services supervising construction	116 00
May 29.	Thomas Ryan	Services as laborer	75 00
May 29.	J. S. Tibbals	Sewer through Section 5 seawall	589 37
June 3.	C. L. Crisman	Office on Washington-Street wharf	130 00
June 3.	S. F. Bridge Co.	Removing sheds from Broadway wharf	1,200 00
June 3.	J. W. Donohue	Enlarging office on Jackson-Street wharf	71 00
June 13.	P. J. Thomas	Printing specifications	17 50
June 15.	Enterprise M. and B. Co.	Millwork	25 35
		Amount carried forward	$183,803 24

STATEMENT OF THE AMOUNT PAID ON ACCOUNT OF CONSTRUCTION—Continued.

Date.	To Whom Paid.	On Account of.	Amount.
1885.		Amount brought forward	$183,803 24
June 15.	Alta California Pub. Co.	Advertising for proposals	37 50
June 17.	J. L. Zeigler	Moving fishermen's market	190 00
June 24.	David Finley	Pier between Broadway and Vallejo-Streets piers	5,679 36
June 24.	Thomas Thomson	Pier between Folsom and Harrison-Streets piers	692 44
June 26.	E. O. Johnson	Services assisting Engineer	34 50
June 26.	P. R. Thompson	Services assisting Engineer	42 00
June 27.	W. S. Phelps & Co.	Smithwork	70 62
June 29.	Renton Coal Company	Fuel for tar pot	9 50
June 29.	San Francisco Gaslight Co.	Coal tar	40 00
June 30.	Examiner Publishing Co.	Advertising for proposals	65 00
June 30.	Thomas Ryan	Services as laborer	87 00
June 30.	Payroll	Supervisors of construction	54 16
June 30.	F. H. Kellogg	Asphaltum pavement on seawall wharf	202 52
June 30.	H. C. Tickner	Services supervising construction	108 00
July 3.	San Francisco Bridge Co.	Approach to car ferry slip	553 98
July 6.	P. J. Thomas	Printing specifications	27 00
July 6.	Alta California Pub. Co.	Advertising for proposals	30 00
July 10.	Southern Pacific Company	Draughting for car ferry slip	109 38
July 16.	James Alexander	Fuel for tar pot	11 00
July 17.	Alta California Pub. Co.	Advertising for proposals	59 00
July 22.	Thomas Thomson	Towing piles	50 00
July 24.	David Finley	Pier between Broadway and Vallejo-Street piers	5,249 13
July 24.	A. G. Martin	Services assisting Engineer	30 75
July 25.	H. Weber	Hauling	3 00
July 25.	P. R. Thompson	Services assisting Engineer	48 75
July 28.	James Gallup & Co.	Hardware	20 80
July 28.	San Francisco Gaslight Co.	Coal tar	80 00
July 31.	E. O. Johnson	Services assisting Engineer	10 50
July 31.	T. E. Hoin	Services assisting Engineer	28 50
July 31.	Examiner Publishing Co.	Advertising for proposals	76 50
July 31.	J. W. Donohue	Apron, etc., at Washington-Street wharf	82 50
July 31.	P. J. Thomas	Printing specifications	17 50
July 31.	Payroll	Labor	75 00
July 31.	Payroll	Supervisors of construction	410 00
Aug. 5.	San Francisco Bridge Co.	Approach to car ferry slip	1,589 71
Aug. 13.	Alta California Pub. Co.	Advertising for proposals	17 50
Aug. 14.	Thomas M. Manning	Gas fixtures, etc., at fishermen's market	35 00
Aug. 14.	San Francisco Bridge Co.	Connecting wharves along seawall, etc.	1,808 60
Aug. 21.	San Francisco Bridge Co.	Connecting wharves along seawall, etc.	1,028 40
Aug. 21.	David Finley	Car ferry slip at foot of Second Street	5,536 56
Aug. 22.	James Gallup & Co.	Hardware	5 69
Aug. 27.	David Finley	Pier between Broadway and Vallejo-Street piers	5,163 08
Aug. 28.	Thomas Ryan	Services as laborer	78 00
Aug. 28.	San Francisco Gaslight Co.	Coal tar	83 00
Aug. 28.	P. F. Dundon	Smithwork	405 86
Aug. 28.	Renton Coal Company	Fuel for tar pot	21 00
Aug. 28.	A. G. Martin	Services assisting Engineer	60 00
Aug. 28.	P. R. Thompson	Services assisting Engineer	63 00
Aug. 28.	E. O. Johnson	Services assisting Engineer	35 25
Aug. 31.	Payroll	Supervisors of construction	426 00
Sept. 4.	San Francisco Bridge Co.	Approach to car ferry slip	1,766 49
Sept. 7.	J. W. McDonald	Paving seawall roadway	1,138 95
Sept. 11.	H. Weber	Hauling	11 50
Sept. 18.	California Wire Works	Steel rope	45 58
Sept. 25.	E. O. Johnson	Services assisting Engineer	31 50
Sept. 25.	A. G. Martin	Services assisting Engineer	60 00
		Amount carried forward	$217,499 80

Statement of the Amount Paid on Account of Construction—Continued.

Date.	To Whom Paid.	On Account of.	Amount.
1885.		Amount brought forward	$217,499 80
Sept. 26	Philip Thompson	Services assisting Engineer	66 00
Sept. 26	H. Weber	Hauling	10 50
Sept. 28	David Finley	Car ferry slip, foot of Second Street	11,278 16
Sept. 28	San Francisco Gaslight Co.	Coal tar	187 40
Sept. 28	Alta California Pub. Co.	Advertising for proposals	17 50
Sept. 29	Haslett & Bailey	Weighing rock	4 50
Sept. 30	Payroll	Supervisors of construction	283 00
Oct. 3	John Phillips	Services supervising construction	37 00
Oct. 3	Payroll	Supervisors of construction	125 00
Oct. 7	J. W. McDonald	Paving seawall roadway	5,643 00
Oct. 8	San Francisco Bridge Co.	Approach to car ferry slip	942 62
Oct. 9	David Finley	Pier between Broadway and Vallejo-Street piers	6,855 43
Oct. 9	Thos. Thomson	Office and freight room on Folsom-Street pier	210 00
Oct. 14	B. McMahon	Gates at wharves	325 00
Oct. 14	J. W. McDonald	Sewer in Sansome Street	1,100 00
Oct. 21	Examiner Publishing Co.	Advertising for proposals	17 50
Oct. 28	San Francisco Gaslight Co.	Coal tar	8 00
Oct. 29	H. Weber	Hauling	5 00
Oct. 30	P. R. Thompson	Services assisting Engineer	64 50
Oct. 31	E. O. Johnson	Services assisting Engineer	16 50
Oct. 31	Payroll	Supervisors of construction	557 00
Nov. 5	San Francisco Bridge Co.	Approach to car ferry slip	1,511 51
Nov. 5	C. C. Myall	Services supervising construction	133 33
Nov. 5	J. W. McDonald	Paving seawall roadway	10,169 49
Nov. 5	C. L. Crisman	Shed on Broadway wharf No. 2	1,145 10
Nov. 10	J. W. McDonald	Paving seawall roadway	24 00
Nov. 13	Sullivan & Ravekes	Paint	30 00
Nov. 27	E. O. Johnson	Services assisting Engineer	24 00
Nov. 27	C. S. Tilton	Locating corner of Second and King Streets	15 00
Nov. 30	San Francisco Gaslight Co.	Coal tar	40 00
Nov. 30	Jas. Alexander	Fuel for tar pot	9 00
Nov. 30	Payroll	Supervisors of construction	543 00
Dec. 2	C. L. Crisman	Shed on Broadway wharf No. 2	3,721 58
Dec. 3	P. R. Thompson	Services assisting Engineer	24 00
Dec. 14	Alta California Pub. Co.	Advertising for proposals	33 00
Dec. 16	San Francisco Bridge Co.	Approach to car ferry slip	4,460 47
Dec. 18	David Finley	Car ferry slip at foot of Second Street	10,526 28
Dec. 23	E. O. Johnson	Services assisting Engineer	9 75
Dec. 26	P. J. Thomas	Printing specifications	31 50
Dec. 28	Alta California Pub. Co.	Advertising for proposals	33 00
Dec. 28	San Francisco Gaslight Co.	Coal tar	40 00
Dec. 29	A. E. Butler	Services assisting Engineer	1 50
Dec. 30	Jas. Alexander	Fuel for tar pot	10 00
Dec. 30	P. R. Thompson	Services assisting Engineer	25 50
Dec. 31	Payroll	Supervisors of construction	350 00
1886.			
Jan. 8	Spring Valley Waterworks	Service connection	18 00
Jan. 13	Pacific Rolling Mill Co.	Iron work	54 00
Jan. 13	Examiner Publishing Co.	Advertising for proposals	78 00
Jan. 19	Southern Pacific Co.	Labor and material at car ferry slip	4,678 37
Jan. 20	San Francisco Bridge Co.	Cattle wharf, foot of Second Street	2,758 00
Jan. 28	E. O. Johnson	Services assisting Engineer	30 00
Jan. 29	David Finley	Car ferry slip, at foot of Second Street	933 55
Jan. 29	David Finley	Car ferry slip, at foot of Second Street	660 12
Jan. 29	P. R. Thompson	Services assisting Engineer	43 50
Jan. 30	Payroll	Supervisors of construction	214 00
Feb. 15	J. Wigmore	Lumber	12 25
Feb. 17	San Francisco Bridge Co.	Connecting Broadway wharf and seawall	1,792 69
Feb. 27	P. R. Thompson	Services assisting Engineer	30 00
Feb. 27	Payroll	Supervisors of construction	91 00
Feb. 27	C. L. Crisman	Shed on Broadway wharf No. 2	2,767 32
		Amount carried forward	$292,325 22

STATEMENT OF THE AMOUNT PAID ON ACCOUNT OF CONSTRUCTION—Continued.

Date.	To Whom Paid.	On Account of.	Amount.
1886.		Amount brought forward	$292,325 22
Mar. 5.	E. O. Johnson	Services assisting Engineer	21 00
Mar. 6.	P. J. Thomas	Printing specifications	10 00
Mar. 10.	Alta California Pub. Co.	Advertising for proposals	33 00
Mar. 10.	Examiner Publishing Co.	Advertising for proposals	39 00
Mar. 26.	E. O. Johnson	Services assisting Engineer	35 25
Mar. 26.	P. R. Thompson	Services assisting Engineer	51 00
Mar. 29.	A. Leitz & Co.	Repairs to surveying instruments	20 25
Mar. 29.	San Francisco Gaslight Co.	Coal tar	80 00
Mar. 31.	Payroll	Supervisors of construction	182 00
April 2.	San Francisco Bridge Co.	Connecting Broadway wharf and seawall	1,394 31
April 20.	Thos. Ryan	Services as laborer	30 00
April 26.	P. R. Thompson	Services assisting Engineer	9 00
April 28.	E. O. Johnson	Services assisting Engineer	20 00
April 29.	A. E. Butler	Services assisting Engineer	6 00
April 30.	Payroll	Supervisors of construction	125 00
May 13.	Alta California Pub. Co.	Advertising for proposals	18 00
May 15.	Examiner Publishing Co.	Advertising for proposals	18 00
May 19.	J. W. McDonald	Sewer in Broadway	1,777 47
May 26.	A. E. Butler	Services assisting Engineer	16 50
May 26.	Jason Springer & Co.	Lumber	234 43
May 27.	Elder & Dobbie	Plumbing	31 75
May 28.	C. G. Schaefer	Painting	60 00
June 4.	P. T. Gaffey	Services supervising construction	125 00
June 7.	J. W. McDonald	Opening trench through seawall	150 00
June 11.	G. & E. Snook	Plumbing	26 16
June 16.	Spring Valley Waterworks	Service connection	5 00
June 25.	W. H. Elliott	Inclosing lot	178 60
June 25.	E. O. Johnson	Services assisting Engineer	27 00
June 26.	A. E. Butler	Services assisting Engineer	18 75
June 29.	B. McMahon	Slips at Folsom-Street wharf	226 00
June 30.	T. Palmer	Boat hire	2 50
June 30.	Payroll	Supervisors of construction	185 00
			$297,481 19
		Deduct amount included in this statement expended for improving seawall lots	3,426 31
			$294,054 88

STATEMENT OF THE SAN FRANCISCO HARBOR IMPROVEMENT FUND, FOR THE TWO FISCAL YEARS ENDING JUNE 30, 1886.

Dr.

1884.			
July 18.	To amount remitted by Commissioners for July	$8,000 00	
Aug. 4.	To amount remitted by Commissioners for July	11,505 27	
			$19,505 27
Aug. 18.	To amount remitted by Commissioners for August	$10,000 00	
Sept. 3.	To amount remitted by Commissioners for August	11,793 81	
			21,793 81
Sept. 18.	To amount remitted by Commissioners for September	$10,000 00	
Oct. 3.	To amount remitted by Commissioners for September	11,513 30	
			21,513 30
Oct. 20.	To amount remitted by Commissioners for October	$10,000 00	
Nov. 5.	To amount remitted by Commissioners for October	11,168 91	
			21,168 91
Dec. 3.	To amount remitted by Commissioners for November		24,630 29
1885.			
Jan. 5.	To amount remitted by Commissioners for December		26,312 87
Feb. 4.	To amount remitted by Commissioners for January		21,993 08
Mar. 4.	To amount remitted by Commissioners for February		23,079 71
April 3.	To amount remitted by Commissioners for March		18,416 22
May 4.	To amount remitted by Commissioners for April		22,380 01
June 3.	To amount remitted by Commissioners for May		19,078 13
July 3.	To amount remitted by Commissioners for June		19,830 41
Aug. 4.	To amount remitted by Commissioners for July		17,154 09
Sept. 3.	To amount remitted by Commissioners for August		18,188 30
Oct. 3.	To amount remitted by Commissioners for September		22,311 91
Nov. 4.	To amount remitted by Commissioners for October		20,849 86
Dec. 3.	To amount remitted by Commissioners for November		17,875 71
1886.			
Jan. 4.	To amount remitted by Commissioners for December		26,412 25
Feb. 3.	To amount remitted by Commissioners for January		19,858 23
Mar. 3.	To amount remitted by Commissioners for February		27,630 15
April 3.	To amount remitted by Commissioners for March		15,984 06
May 4.	To amount remitted by Commissioners for April		19,131 89
June 3.	To amount remitted by Commissioners for May		22,029 74
July 3.	To amount remitted by Commissioners for June		22,004 99
	Total amount remitted		$509,133 19
	Balance in San Francisco Harbor Improvement Fund, July 1, 1884		201,968 32
			$711,101 51

Statement of the San Francisco Harbor Improvement Fund—Continued.

Cr.

Date.	Order.	No.	On Account of.	Amount.
1884.				
July 3.	Wm. D. English	377	Constructing seawall	$6,700 90
Aug. 7.	Wm. D. English	378	Constructing seawall	13,128 44
Aug. 7.	John Kelso	379	Filling seawall lots	2,221 88
Aug. 21.	Moore & Smith	380	Furnishing lumber	714 91
Aug. 26.	C. L. Crisman	381	Planking Pacific-Street wharf	5,585 99
Sept. 4.	David Finley	382	Driving and pulling piles	600 00
Sept. 4.	B. McMahon	383	Third and Berry-Streets wharves	13,052 63
Sept. 4.	B. McMahon	384	Third and Berry-Streets wharves	2,164 79
Sept. 5.	Wm. D. English	385	Constructing seawall	14,469 08
Sept. 11.	Jas. D. Schuyler	386	Tearing up portion of Green-St. wharf	980 00
Sept. 23.	Thos. H. Day	387	Additional sheds nr. ferry slips 1 and 2	1,240 00
Sept. 23.	A. E. Buckman	388	Sewer in Powell Street	1,327 81
Oct. 4.	Wm. D. English	389	Constructing seawall	18,877 27
Oct. 7.	John Kelso	390	Filling seawall lots	1,036 88
Oct. 7.	John Kelso	391	Embankment along Center Street	2,475 00
Oct. 7.	David Finley	392	Center-Street wharf	5,089 50
Oct. 10.	David Finley	393	Driving and pulling piles	810 00
Oct. 10.	C. L. Crisman	394	Sewer	875 00
Oct. 23.	B. McMahon	395	Third and Berry-Streets wharves	15,316 37
Nov. 6.	John P. Sheldon	396	Connecting wharves along seawall, etc.	2,745 00
Nov. 11.	Wm. D. English	397	Constructing seawall	16,580 43
Nov. 11.	David Finley	398	Center-Street wharf	15,765 50
Nov. 11.	David Finley	399	Connecting wharves along seawall, etc.	8,697 00
Nov. 18.	Jas. D. Schuyler	400	Filling seawall lots	840 13
Nov. 25.	Thos. H. Day	401	Sheds near ferry slip No. 2	1,340 00
Nov. 25.	John Kelso	402	Embankment along Center Street	3,525 00
Nov. 25.	B. McMahon	403	Third and Berry-Streets wharves	27,104 21
Dec. 4.	Wm. D. English	404	Constructing seawall	19,410 56
Dec. 11.	John Kelso	405	Filling seawall lots	1,123 12
Dec. 11.	Geo. W. Watson	406	Reconstructing ferry slips 3 and 4	5,150 25
1885.				
Jan. 3.	Wm. D. English	407	Constructing seawall	9,893 68
Jan. 15.	David Finley	408	Connecting Green-Street wharf with seawall	800 00
Feb. 3.	Wm. D. English	409	Constructing seawall	9,457 15
Feb. 3.	Thos. H. Day	410	House at Third and Berry-Sts. wharves	1,538 00
Feb. 10.	Thos. Thomson	411	Shed on Folsom-Street pier	3,702 60
Feb. 10.	Geo. W. Watson	412	Reconstructing ferry slips 3 and 4	6,294 75
Feb. 24.	David Finley	413	Driving and pulling piles	3,392 75
Mar. 10.	Wm. D. English	414	Constructing seawall	9,661 18
Mar. 10.	W. L. Richardson	415	Reconstructing ferry slips 3 and 4	1,123 12
Mar. 10.	Thos. Thomson	416	Shed on Folsom-Street pier	2,823 08
Mar. 12.	John Kelso	417	Filling seawall lots	1,000 00
Mar. 12.	B. McMahon	418	Fishermen's wharf and breakwater	19,300 00
Mar. 17.	Wm. D. English	419	Constructing seawall	3,259 49
Mar. 24.	Thos. Thomson	420	Shed on Folsom-Street pier	2,444 32
Mar. 24.	F. H. Kellogg	421	Asphaltum on Sec. 5, seawall wharf	607 58
Mar. 26.	Thos. Thomson	422	Shed on Folsom-Street pier	141 22
Mar. 31.	Thos. Thomson	423	Folsom-Street pier No. 2	5,635 50
April 16.	S. F. Bridge Co.	424	Connecting wharves along seawall, etc.	962 00
April 23.	B. McMahon	425	Fishermen's wharf and breakwater	2,682 77
April 28.	B. McMahon	426	Driving piles	728 00
May 5.	Thos. Thomson	427	Folsom-Street pier No. 2	9,282 00
May 5.	S. F. Bridge Co.	428	Constructing seawall	5,103 02
May 7	Knowlton Barrett	429	Repairing hoisting gear, etc., ferry slip No. 4	438 75
May 12.	Knowlton Barrett	430	Repairing hoisting gear, etc., ferry slip No. 4	196 25
May 12.	C. L. Crisman	431	Steps off Sec. 4, seawall, etc.	319 56
May 14.	J. S. Tibbals	432	Sewer through Sec. 5, seawall	538 13
May 29.	Thos. Thomson	433	Folsom-Street pier No. 2	7,182 50
May 29.	J. S. Tibbals	434	Sewer through Sec. 5, seawall	589 37
			Amount carried forward	$318,044 42

STATEMENT OF THE SAN FRANCISCO HARBOR IMPROVEMENT FUND—Continued.

Cr.

Date.	Order.	No.	On Account of.	Amount.
1885.			Amount brought forward	$318,044 42
June 2	S. F. Bridge Co.	435	Constructing seawall	6,293 74
June 2	S. F. Bridge Co.	436	Removing sheds from Broadway wh'f	1,200 00
June 16	J. L. Zeigler	437	Moving fishermen's market	190 00
June 16	Wm. D. English	438	Constructing seawall	25,514 87
June 16	Wm. D. English	439	Constructing seawall	5,828 60
June 16	Wm. D. English	440	Constructing seawall	7,856 70
June 16	Wm. D. English	441	Constructing seawall	3,480 58
June 23	David Finley	442	Broadway pier No. 2	5,679 36
June 23	B. McMahon	443	Driving and pulling piles	1,717 18
June 23	Thos. Thomson	444	Folsom-Street pier No. 2	692 44
June 30	F. H. Kellogg	445	Asphaltum on Sec. 5, seawall wharf	202 52
July 2	C. L. Crisman	446	Repairing Harrison-Street shed	594 00
July 2	S. F. Bridge Co.	447	Constructing seawall	7,348 31
July 2	S. F. Bridge Co.	448	Approach to freight ferry slip	553 98
July 23	David Finley	449	Broadway pier No. 2	5,249 13
July 30	C. L. Crisman	450	Repairing fishermen's market	514 00
July 30	B. McMahon	451	Driving piles	3,940 05
Aug. 4	David Finley	452	Repairing slope of Secs. 1 and 2, seawall	516 00
Aug. 4	S. F. Bridge Co.	453	Constructing seawall	7,843 34
Aug. 4	S. F. Bridge Co.	454	Approach to freight ferry slip	1,589 71
Aug. 13	S. F. Bridge Co.	455	Removing portion of Pacific-Street wharf, etc.	1,808 60
Aug. 20	David Finley	456	Freight ferry slip	5,536 56
Aug. 20	S. F. Bridge Co.	457	Removing portion of Pacific-Street wharf, etc.	1,028 40
Aug. 27	David Finley	458	Broadway pier No. 2	5,163 08
Sept. 4	S. F. Bridge Co.	459	Constructing seawall	13,614 47
Sept. 4	S. F. Bridge Co.	460	Approach to freight ferry slip	1,766 49
Sept. 4	J. W. McDonald	461	Paving seawall roadway	1,138 95
Sept. 4	David Finley	462	Repairing slope of Secs. 1 and 2, seawall	659 32
Sept. 4	David Finley	463	Filling seawall lots	137 36
Sept. 10	J. J. Cummings	464	Filling seawall lots	841 80
Sept. 24	David Finley	465	Freight ferry slip	11,278 16
Oct. 1	S. F. Bridge Co.	466	Constructing seawall	8,104 80
Oct. 1	David Finley	467	Repairing slope of Secs. 1 and 2, seawall	1,117 99
Oct. 6	S. F. Bridge Co.	468	Approach to freight ferry slip	942 62
Oct. 6	David Finley	469	Filling seawall lots	480 34
Oct. 6	J. W. McDonald	470	Paving seawall roadway	5,643 00
Oct. 8	David Finley	471	Broadway pier No. 2	6,855 43
Oct. 8	Thos. Thomson	472	Office, etc., under Folsom-Street shed	210 00
Oct. 13	B. McMahon	473	Gates at oil wharf and Third and Berry-Streets wharves	325 00
Oct. 13	J. W. McDonald	474	Brick sewer in Sansome Street	1,100 00
Oct. 15	S. F. Bridge Co.	475	Constructing seawall	3,051 29
Oct. 27	B. McMahon	476	Driving piles	5,654 34
Oct. 29	Conners & Winters	477	Filling seawall lots	160 00
Nov. 4	S. F. Bridge Co.	478	Constructing seawall	8,913 36
Nov. 4	S. F. Bridge Co.	479	Approach to freight ferry slip	1,511 51
Nov. 4	C. L. Crisman	480	Shed on Broadway wharf No. 2	1,145 10
Nov. 4	J. W. McDonald	481	Paving seawall roadway	10,169 49
Nov. 4	C. A. Warren	482	Filling seawall lots	2,486 80
Nov. 4	David Finley	483	Repairing slope of Secs. 1 and 2, seawall	1,057 66
Nov. 4	David Finley	484	Filling seawall lot	803 25
Nov. 17	David Finley	485	Driving piles	2,015 80
Dec. 1	S. F. Bridge Co.	486	Constructing seawall	9,615 08
Dec. 1	C. L. Crisman	487	Shed on Broadway wharf No. 2	3,721 58
Dec. 8	David Finley	488	Driving piles	2,852 19
Dec. 15	David Finley	489	Repairing slope of Secs. 1 and 2, seawall	75 53
Dec. 15	Moore & Smith	490	Furnishing lumber	513 14
Dec. 15	S. F. Bridge Co.	491	Approach to freight ferry slip	4,460 47
			Amount carried forward	$530,807 89

STATEMENT OF THE SAN FRANCISCO HARBOR IMPROVEMENT FUND—Continued.

Cr.

Date.	Order.	No.	On Account of.	Amount.
1885.			Amount brought forward	$530,807 89
Dec. 17.	David Finley	492	Freight ferry slip	10,526 28
Dec. 29.	Renton, Holmes & Co.	493	Furnishing lumber	1,672 39
1886.				
Jan. 5.	S. F. Bridge Co.	494	Constructing seawall	9,053 79
Jan. 5.	David Finley	495	Driving piles	2,491 70
Jan. 5.	W. L. Richardson	496	Repairing wharf between ferry slips 4 and 5	998 80
Jan. 7.	C. A. Warren	497	Filling seawall lots	2,161 15
Jan. 12.	S. M. Hills	498	Filling seawall lots	139 37
Jan. 14.	Southern Pacific Co.	499	Materials and labor keeping up tracks and slip at Second Street	4,678 37
Jan. 19.	Kearny & Brady	500	Filling seawall lots	84 30
Jan. 19.	Kearny & Gray	1	Filling seawall lots	62 40
Jan. 19.	S. F. Bridge Co.	2	Cattle wharf, foot of Second Street	2,758 00
Jan. 21.	Renton, Holmes & Co.	3	Furnishing lumber	1,023 06
Jan. 28.	David Finley	4	Freight ferry slip	933 55
Jan. 28.	David Finley	5	Freight ferry slip	660 12
Feb. 2.	S. F. Bridge Co.	6	Constructing seawall	7,684 74
Feb. 2.	C. A. Warren	7	Filling seawall lots	1,658 65
Feb. 2.	Kearny & Brady	8	Filling seawall lots	672 15
Feb. 2.	David Finley	9	Driving piles	4,366 95
Feb. 4.	David Finley	10	Filling seawall lots	511 95
Feb. 4.	David Finley	11	Repairing slope of Secs. 1 and 2, seawall	235 48
Feb. 11.	S. F. Bridge Co.	12	Filling seawall lots	2,999 81
Feb. 16.	S. F. Bridge Co.	13	Connecting Broadway wharf No. 1 with seawall wharf	1,792 69
Feb. 27.	C. L. Crisman	14	Shed on Broadway wharf No. 2	2,767 32
Feb. 27.	T. C. Coogan	15	Condemnation of land of Geo. Leviston for seawall	4,537 00
Mar. 2.	S. F. Bridge Co.	16	Constructing seawall	3,567 78
Mar. 2.	David Finley	17	Driving piles	4,485 41
Mar. 2.	David Finley	18	Repairing slope of Sections 1 and 2, seawall	473 71
Mar. 2.	C. A. Warren	19	Filling seawall lots	1,304 00
Mar. 2.	Kearny and Brady	20	Filling seawall lots	545 50
Mar. 5.	S. F. Bridge Co.	21	Filling seawall lots	4,431 30
Mar. 9.	John H. Rosenbohm	22	Condemnation of land for seawall	14,532 00
Mar. 9.	Robert Dunsmuir	23	Condemnation of land for seawall	7,434 00
Mar. 9.	Alice A. Donzel	24	Condemnation of land for seawall	357 00
April 1.	S. F. Bridge Co.	25	Connecting Broadway wharf No. 1 with seawall wharf	1,394 31
April 13.	S. F. Bridge Co.	26	Construction of seawall	4,870 91
April 13.	S. F. Bridge Co.	27	Filling seawall lots	7,561 95
April 20.	David Finley	28	Repairing slope of Sections 1 and 2, seawall	435 49
April 22.	David Finley	29	Driving piles	7,818 34
May 4.	S. F. Bridge Co.	30	Filling seawall lots	1,871 66
May 6.	S. F. Bridge Co.	31	Filling seawall lots	5,358 98
May 6.	S. F. Bridge Co.	32	Filling seawall lots	200 00
May 6.	David Finley	33	Repairing slope of Sections 1 and 2, seawall	327 25
May 18.	J. W. McDonald	34	Broadway sewer	1,777 47
June 1.	David Finley	35	Repairing slope of Sections 1 and 2, seawall	582 29
June 3.	David Finley	36	Filling seawall lots	153 30
June 10.	S. F. Bridge Co.	37	Driving piles	1,778 46
				$666,539 02
			Balance in San Francisco Harbor Improvement Fund	44,562 49
				$711,101 51

COMPARATIVE STATEMENT OF RECEIPTS AND DISBURSEMENTS.

FISCAL YEAR.	RECEIPTS.	EXPENSES.		CONSTRUCTION AND REPAIRS.		DREDGING.				
From the Organization of the Commission.	From Dockage, Tolls, Wharfage, Rents, etc.	Salaries Commissioners, Secretary, Clerk (and Law Fees), Wharfinger, Collectors, Fuel, Rent, Printing, Stationery, etc.	Percentage per Year.	Building Wharves, Bulkheads, Sheds, etc., and Repairs on the same.	Seawall.	All Dredging up to 1874 was done under Contract. Since by Commissioners.	Purchase of Dredgers, Scows, and Repairs.	Miscellaneous.	Remitted State Treasurer.	Drawn from State Treasurer.
1863–4	$117,848 28	$25,354 84	21.50	$67,599 82	----------	----------	----------	$676 25	$71,897 39	$47,680 02
1864–5	177,393 66	32,439 10	18.28	80,875 15	----------	----------	----------	----------	123,365 23	62,334 82
1865–6	183,716 80	35,531 42	19.02	19,065 42	$3,607 00	$44,106 50	----------	----------	132,023 96	47,568 50
1866–7	336,409 36	41,233 95	11.95	88,525 78	266 50	10,300 00	----------	330 62	268,573 45	64,345 94
1867–8	294,304 28	55,531 92	18.87	82,791 27	250,991 97	41,021 00	----------	561 18	217,528 06	354,121 12
1868–9	287,890 53	52,130 77	18.11	38,779 83	262,323 13	32,338 00	----------	----------	212,532 07	310,213 27
1869–70	252,649 56	54,684 40	21.65	35,545 04	165,892 68	80,100 00	----------	----------	180,623 37	272,670 93
1870–1	148,917 03	37,782 65	25.37	53,693 31	----------	35,258 00	----------	----------	96,097 20	73,914 13
1871–2	195,031 14	61,006 70	31.28	28,146 62	----------	53,944 40	----------	----------	105,877 82	53,944 40
1872–3	190,330 47	69,858 63	36.50	78,776 28	----------	32,293 20	----------	----------	91,042 59	80,640 23
1873–4	265,709 06	77,938 05	29.33	104,175 98	2,321 85	42,478 56	$34,070 00	6,344 01	166,150 23	168,769 62
1874–5	373,541 72	68,617 14	18.37	209,540 80	1,078 25	33,835 71	3,725 00	924 99	245,369 00	189,549 17
1875–6	372,078 74	65,976 57	17.73	162,000 25	----------	40,802 70	----------	565 47	249,450 44	146,716 69
1876–7	448,087 25	79,208 85	17.68	284,023 05	----------	25,252 94	15,354 45	----------	310,909 33	266,661 37
1877–8	446,516 82	84,326 72	18.88	112,628 95	4,803 38	38,214 40	82,068 79	1,665 88	285,521 50	162,712 80
1878–9	466,420 55	97,162 63	20.83	164,560 55	107,091 87	60,454 68	3,948 84	595 50	274,370 87	241,764 39
1879–80	427,687 56	100,667 57	23.53	141,022 14	309,652 90	51,675 28	1,173 50	2,510 53	240,414 91	419,429 27
1880–1	419,437 49	102,746 75	24.49	199,972 97	383,174 96	51,462 52	----------	4,785 32	204,782 41	527,487 44
1881–2	455,005 64	104,255 15	22.91	86,102 58	92,804 98	48,743 45	----------	4,320 00	249,919 90	131,140 42
1882–3	436,030 54	107,883 69	24.74	179,089 82	34,949 22	51,457 50	5,247 00	28,129 37	*194,860 84	165,586 90
1883–4	501,243 25	115,231 30	22.98	173,997 19	76,461 63	60,780 40	----------	6,863 55	254,497 78	186,588 60
1884–5	500,702 10	116,194 14	23.20	248,607 11	195,706 95	52,258 80	----------	4,933 50	259,702 01	376,700 41
1885–6	483,851 04	117,693 22	24.32	197,612 03	157,953 82	46,675 40	----------	4,324 00	249,431 18	289,838 61
Totals	$7,780,802 87	$1,703,456 16	----------	$2,837,131 94	$2,049,081 09	$933,453 44	$145,587 58	$67,530 17	$4,684,941 54	$4,640,379 05
Balance in Treasury	----------	----------	----------	----------	----------	----------	----------	----------	----------	44,562 49
										$4,684,941 54

NOTE.—May 1, 1872. Rates of dockage, tolls, wharfage, and rents, were reduced 50 per cent by Act of Legislature. On December 30, 1879, the rates on merchandise were reduced as follows, viz.: 12½ to 10 cents, 6¼ to 5 cents; on lumber, from 10 to 5 cents per 1,000 feet; on coal, from 10 to 5 cents per ton; on wood, from 12½ to 5 cents per cord. On June 4, 1880, the dockage rates were changed so that instead of the day of arrival and day of departure being charged for as full days, the day was reckoned from the hour of arrival to the same hour on succeeding days. Salaries of Wharfingers and Collectors were increased 25 per cent by Act of Legislature, approved March 19, 1878. On July 1, 1885, the rates of tolls were very materially reduced, in some cases 50 per cent, and a reduction in dockage rates was made of about 20 per cent.

*This amount is less that entered in the last report, $19,087 99, which amount was erroneously entered in the books of John S. Gray, late Secretary, as remitted; in this table it is placed under the head of "Miscellaneous."

STATEMENT OF COST OF DREDGING.

Fiscal Year Ending—	Salary of Employés.	Repairs.	Coal.	Ship Chandlery and Water.	Miscellaneous, including Docking Dredges, Tugs, and Scows.	Total.	No. Yards Dredged.	Worked No. Hours.	Cost per Cubic Yard. Cents.
June 30, 1875	$11,663 97	$10,362 99	$8,639 00	$1,386 64	$1,301 25	$33,835 71	303,429	2,348¾	10.76-100
June 30, 1876	11,932 98	7,639 43	8,224 04	1,660 85	1,905 74	31,363 19	342,638	2,634	9.15-100
June 30, 1877	11,980 99	4,041 44	5,971 71	1,582 10	1,676 79	25,253 03	280,197	2,478½	9.1-100
June 30, 1878	17,188 80	7,372 48	7,754 86	2,666 37	3,032 55	38,214 40	423,654	3,080	9.2-100
June 30, 1879	26,201 70	14,963 90	11,755 12	5,443 70	1,289 60	60,454 68	843,879	4,694	7.16-100
June 30, 1880	27,202 59	8,824 19	11,115 11	4,184 65	318 75	51,645 29	749,011	4,323	6.89-100
June 30, 1881	25,948 49	10,196 63	11,037 15	4,194 44	85 81	51,462 52	732,919	3,962⅕	7.2-100
June 30, 1882	25,860 00	9,556 57	8,925 33	4,101 10	300 45	48,743 45	639,570	3,639⅕	7.62-100
June 30, 1883	25,860 01	12,152 06	9,093 05	3,800 58	551 80	51,457 50	635,322	3,776⅓	8.13-100
June 30, 1884	26,358 00	20,906 35	9,838 60	3,627 45	50 00	60,780 40	643,100	3,663⅓	9.45-100
June 30, 1885	26,896 24	11,610 58	10,074 34	3,657 64	20 00	52,258 80	680,700	3,652⅓	7.68-100
June 30, 1886	26,634 65	6,293 18	9,886 55	3,841 02	20 00	46,675 40	678,900	3,758½	6.87-100

BALANCE SHEET.

From November 4, 1863, to June 30, 1886.

RECEIPTS.		
From dockage, tolls, wharfage, rents, etc.		$7,780,802 87
DISBURSEMENTS.		
Salaries of Commissioners, Secretaries, Engineers, Attorneys, Wharfingers, and Collectors, law fees, fuel, rent, stationery, etc.	$1,703,456 16	
Constructing and repairing wharves, sheds, etc.	2,837,131 94	
Seawall (construction of)	2,049,081 09	
Purchase of and constructing dredgers, tugs, and scows	145,587 58	
Dredging (cost of)	933,453 44	
Payroll (crew of fireboat)	26,195 99	
Suspense account (defalcations of John S. Gray)	23,308 10	
Miscellaneous (loss of merchandise by breaking down of wharves, and damages to vessels and other property)	18,026 08	
Cash in the treasury	44,562 49	
		7,780,802 87
Dr. CASH.		
To amount remitted to the State Treasurer		$4,684,941 54
Cr. CASH.		
By amount drawn from State Treasurer	$4,640,379 05	
By cash on hand in the treasury	44,562 49	
		4,684,941 54

REPORT OF T. C. COOGAN, ATTORNEY.

To the Honorable Board of State Harbor Commissioners of the State of California:

Gentlemen: I herewith present my report as Attorney of your honorable Board, showing what has transpired in relation to litigation in my charge during the two fiscal years ending June 30, 1886:

ACTIONS PENDING AT THE DATE OF LAST REPORT.

The Pacific Transfer Company v. *William Blanding et al. In Superior Court, Department No. 6, No. 23360.*

Action to recover money paid under protest by plaintiffs to defendants for wharfage. 1879, October 24, complaint filed. 1883, December 23, answer of William Blanding and A. M. Burns filed. 1881, January 10, answer of Bruce Lee filed. Ready for trial on behalf of defendants.

The People of the State of California v. *Turner, Kennedy & Shaw. No. 28969, in Justice's Court.*

Action to recover tolls and wharfage on Channel Street. 1877, February 15, complaint filed and issue joined. February 24, defendants moved that cause be transferred to the late Twelfth District Court. Motion granted, but defendants have not yet paid costs, and papers have not been filed in said District Court, or in its successor, the Superior Court.

The People of the State of California v. *Turner, Kennedy & Shaw. No. 30557, in Justice's Court.*

Action to recover tolls and wharfage on Channel Street. This action is in the same condition as the one last above named, and is against the same defendants.

William Blanding et al. v. *The Barkentine Victor. No. 2345, in United States District Court.*

A libel for dockage in China Basin. Pending and awaiting hearing.

Samuel Soule et al. v. *Benjamin Holliday, Jr.*

Action to recover $395 87 for dockage and tolls. On January 16, 1884, judgment was rendered in favor of plaintiffs for $395 87, with interest thereon from April 11, 1874, and costs, $11 50. This judgment remains unsatisfied.

The People of the State of California v. *Thomas R. Huson et al. No. 7207, in Supreme Court.*

Action to recover $1,045 10 for deficiency in account of Huson as Wharfinger. 1878, May 6, complaint filed. August 15, answer filed. September 24, judgment for defendants. November 10, plaintiffs moved for a new trial, which was on May 5, 1880, denied, and on May 21, 1880, plaintiffs appealed to the Supreme Court. Pending the appeal one of the defendants, E. J. Lewis, died in Tehama County. No administration has ever been taken out on his estate.

William Blanding v. *Smith & Smith et al. In Superior Court, Department No. 4, No. 22545.*

Action to recover $1,000, for breach of a bond guaranteeing a performance of an asphaltum contract.

1878, September 28, complaint filed. Since the date of last report, the following proceedings have been had: 1884, November 20, action tried as to the defendant, Ira P. Rankin, and submitted on briefs. December 11, defendant's brief received. December 20, plaintiffs' brief served. 1885, January 3, defendant's reply brief received. February 27, decision in favor of defendant, Ira P. Rankin. March 23, notice of decision received. The defendants, Smith & Smith, are fictitious persons, and the action is now ready for trial as to the defendant, R. H. Savory.

C. A. Hooper et al. v. *F. P. Swett. In Superior Court, Department No. 4, No. 6618.*

Action to restrain defendant from building a wharf on Channel Street, under a contract with the Board.

Since the date of the last report, this action was restored to the calendar, for trial. On the day fixed for the trial, it was dismissed on motion of plaintiffs, made in open Court.

The People of the State of California v. *Potrero and Bay View Railroad Company. No. 8950, in Supreme Court.*

Action to declare certain piles and a bridge, built by the defendant, in and over Islais Creek, a nuisance, and to have the same abated.

Action commenced January 14, 1880, and tried in December, 1881, and decided in favor of the plaintiffs. On January 20, 1882, a motion for a new trial was made therein and denied, and on April 10, 1883, the defendant appealed to the Supreme Court, and the action was there pending at the date of the last report. Since which, the following proceedings were had: 1885, February 13, defendant's points and authorities received. February 21, plaintiffs' points and authorities served and filed. February 26, argued orally. March 13, plaintiffs' brief served and filed. June 24, judgment and order reversed, and cause remanded.

The People ex rel. John Hackett v. *William Blanding et al. In Supreme Court.*

Action to restrain the Board from carrying on certain dredging operations.

1881, April 23, complaint filed and restraining order issued. A motion was made to set aside this order, which was granted, and from the order granting the same an appeal was taken to the Supreme Court by plaintiffs, and the appeal was dismissed by the Supreme Court on February 15, 1885.

The People of the State of California v. *Robert G. Byxbee et al. No. 6251, in Superior Court, Department No. 8.*

Action to recover $460 78, for deficiency in accounts of West Evans as Wharfinger.

1882, February 10, complaint filed. This action is now at issue, and is ready for trial on the part of plaintiffs.

Thomas Curtin v. *William Irwin, John H. Wise, and A. C. Paulsell, constituting the Board of State Harbor Commissioners. No. 1675, in Superior Court, Department No. 7.*

1884, March 10, complaint filed in Justice's Court and decision in favor of plaintiff. Defendants appealed to the Superior Court, and judgment was there rendered in favor of defendants. The case stood in this condition at the date of last report. Since then the following proceedings were had: 1884, July 19, notice of intention to move for a new trial received. October 10, motion argued orally and submitted on briefs. November 14, plaintiff's brief received. November 18, defendant's brief served and filed. December 5, plaintiff's brief in reply received. December 19, motion for new trial denied.

The People ex rel. The Board of State Harbor Commissioners v. *Louis Cohn, M. Esberg, Joseph Napthaly, William Bryan, and G. Raisch. No. 10860, in Superior Court, Department No. 4.*

Action to recover upon the official bond of Louis Cohn for deficiency in his accounts as Wharfinger, to the amount of $4,344 75.

1883, October 10, complaint filed. Since the date of the last report the following proceedings were had: 1884, August 1, demurrer to defendant Bryan's answer and motion to strike out parts of the same argued and submitted. August 12, brief of defendant Bryan on his motion received. August 22, demurrer overruled and motion to strike out granted. 1885, September 10, action transferred to Department No. 7 for trial, and action was there tried on October 14, 19, and 20. October 30, judgment ordered in favor of defendants. November 20, Findings filed. November 25, notice of decision and cost bill received.

John S. Wilkins v. *John H. Wise, A. C. Paulsell, and William Irwin, as the Board of State Harbor Commissioners. No. 23935, Justice's Court. In Superior Court, Department No. 8.*

Action to recover damages to plaintiff's horse, alleged to have been injured by falling through a wharf on waterfront in November, 1881.

The action was brought in the Justice's Court November 12, 1883, and after trial had, judgment was in favor of the defendants. Plaintiff appealed to the Superior Court, and the action was there pending at date of last report, and on March 4, 1885, the action was dismissed in open Court.

The People ex rel. Board of State Harbor Commissioners v. *Thomas F. Quirk, J. C. Green, and Donald McLennan. No. 10491, in Superior Court, Department No. 3.*

Action to recover from Thomas F. Quirk $14,149 81, for deficiency in his accounts as Wharfinger, and $5,000 each from J. C. Green and Donald McLennan as sureties on his official bond.

1883, August 22, complaint filed. This action is at issue as to the defendant J. C. Green. The defendant Donald McLennan died since issue was joined as to him, and no administration has as yet been taken out upon his estate.

The People ex rel. Board of State Harbor Commissioners v. *Josiah F. Fairfield, Charles J. Hendry, and W. S. Ray. No. 10938, in Superior Court, Department No. 2.*

Action to recover $12,672 25 from Josiah F. Fairfield for deficiencies in his accounts as Wharfinger, and $5,000 each from C. J. Hendry and W. S. Ray, as sureties on his official bond.

1883, October 19, complaint filed. Since date of last report the following proceedings were had: September 5, 1884, motion to strike out portions of answer of Hendry and Ray granted, and demurrer to same sustained. September tenth, notice given. October 30, 1885, answer of defendant Fairfield received. Action now ready for trial on part of plaintiffs.

The People ex rel. Board of State Harbor Commissioners v. *H. M. La Rue and A. S. Greenlaw. No. 10996, in Superior Court, Department No. 4.*

Action to recover $5,000 each from H. M. La Rue and A. S. Greenlaw, as sureties upon official bond of William Haynie, late Wharfinger, for deficiency in his accounts.

1883, October 26, complaint filed. Since date of the last report the appeal of the defendants to the Supreme Court from the order of the Superior Court, refusing to grant their motion for a change of place of trial to Sacramento County, has been argued and decided in favor of the Board.

The three actions last above named are on the official bonds of the former Wharfingers—Quirk, Fairfield, and Haynie; and an action is now pending in the Superior Court, brought by Hon. E. C. Marshall, Attorney-General of the State, against the late Harbor Commissioners, William Blanding and W. A. Phillips, and the administrator of the estate of George S. Evans, deceased, and the sureties upon their official bonds, to recover for the same deficiencies as are referred to in the complaints in the three actions last above named.

CONDITION AND DISPOSITION OF ACTIONS COMMENCED SINCE THE DATE OF LAST REPORT.

The People of the State of California ex rel. William Irwin et al. v. *J. S. Reno. No. 30469, in Justice's Court.*

Action to recover $6 95 for tolls on the Folsom-Street wharf.

1885, April 28, complaint filed; summons issued. April 29, summons served. May 4, defendant paid claim in full, and on the same day I paid the money over to the Secretary of the Board and dismissed the action.

The People of the State of California ex rel. William Irwin et al. v. *Robert Dunsmuir et al. No. 14984, Superior Court, Departments Nos. 8 and 2.*

Action brought to condemn certain lands for purposes of the seawall and thoroughfare.

1885, May 1, complaint filed, and the proceedings as to each defendant was on their motion carried on separately.

George Leviston.

1885, May 16, defendant appeared. May 31, motion to strike out parts of complaint received. August 3, demurrer received. August 7, motion to strike out denied; demurrer submitted. August 10, brief on demurrer served. August 31, demurrer overruled. September 1, notice of overruling demurrer and denial of motion to strike out served and filed. September 16, answer received. September 19, motion to strike out parts of answer served. September 21, demurrer to first defense served. September 25, motion to strike out granted in part; demurrer overruled. October 2, amended answer received; jury trial demanded; action transferred to Department No. 2. November 2, 3, 4, action tried before jury upon special issues; verdict for plaintiffs upon all the special issues, and the value of the land condemned determined to be $4,500; no damages or benefits to be assessed. October 13, notice of intention to move for a new trial received.

December 4, findings filed and notice given. December 10, order to show cause why judgment should not be entered received. December 14, order extending time to prepare and serve bill of exceptions and statement received. December 18, order as to entering judgment discharged. December 21, bill of exceptions received.

1886, January 7, first bill of exceptions served; proposed amendments served. January 14, notice of non-acceptance of amendments, and fixing time of settlement received. February 12, judgment for the plaintiffs, condemning defendant's land, and that plaintiffs pay to defendant the value thereof, adjudged to be $4,500, and his costs, amounting to $37, and that no damages or benefits be assessed. February 19, judgment entered. February 20, notice of appeal to the Supreme Court received, and undertaking filed. March 2, paid $4,537 into Court for defendant, and the Court ordered the same to be deposited in the State Treasury at Sacramento. March 4, money deposited in State Treasury. March 11, order that State Treasurer pay money deposited to County Clerk of San Francisco; final order of condemnation made. March 13, certified copy of final order of condemnation recorded in County Recorder's office. March 16, order that State Treasurer pay moneys deposited to T. C. Coogan, he to deposit the same with County Clerk of San Francisco, and order of March 11 set aside. March 18, money, $4,537, deposited by T. C. Coogan with County Clerk. March 20, notice of final order of condemnation served. March 23, money deposited with Clerk paid to defendant, he having filed abandonment of defenses, as provided in Section 1254 of the Code of Civil Procedure of the State of California, and filed stipulation, giving plaintiffs possession. April 5, motion for new trial and appeal dismissed.

Robert Dunsmuir.

1885, May 16, defendant appeared. July 21, demurrer received. July 31, demurrer submitted. August 31, demurrer overruled. September 7, answer received. October 2, jury trial waived; action transferred to Department No. 2. December 17, trial commenced. Continued on December 21, 22, 23, and submitted. 1886, January 13, judgment ordered for plaintiffs condemning defendant's land, and that plaintiffs pay to defendant the value thereof, adjudged to be $7,400, and his costs, amounting to $34, and that no damages or benefits be assessed. February 9, findings filed. February 10, notice of decision served and filed. February 15, judgment signed. February 19, judgment entered and notice given. March 11, final order of condemnation made. March 13, certified copy recorded in County Recorder's office. March 20, notice of final order served and possession taken by plaintiffs.

John H. Rosenbohm.

1885, May 5, summons served. May 14, appearance of Jarboe, Harrison & Goodfellow, as attorneys. August 13, answer received. October 2, jury waived; action transferred to Department No. 2. December 17, trial commenced and continued on December 21, 22, 23, and submitted. 1886, January 13, judgment ordered for plaintiffs condemning defendant's land, and that plaintiffs pay to defendant the value thereof, adjudged to be $14,500, and his costs, amounting to $32, and that no damages or benefits be assessed. February 9, findings filed. February 10, notice of decision served and filed. February 15, judgment signed. February 20, notice of entry of judgment served and filed. March 24, final order of condemnation made, certified copy recorded with County Recorder, and notice thereof served, and possession given to plaintiffs.

Alice A. Donzel and Henry Vollmer.

1885, May 16, appearance of Stanley, Stoney, and Hayes as attorneys received. August 12, answer received. October 2, jury waived and action transferred to Department No. 2. 1886, January 4, action partially tried, and continued to January 7. January 7, trial finished and action submitted. January 13, judgment ordered for plaintiffs against Alice A. Donzel, condemning defendant's land, and that plaintiff pay to defendant the value thereof, adjudged to be $350, and her costs, amounting to $7, and that no damages or benefits be assessed. February 9, findings filed. February 10, notice of decision served and filed. February 15, judgment signed. February 20, notice of entry of judgment served and filed. March 11, final order of condemnation made. March 13, certified copy thereof recorded in County Recorder's office and possession given to plaintiffs. And it was further adjudged that the defendants, Alice A. Donzell as executrix, Henry Vollmer, and C. G. Kenerleber had no interest whatever in the land condemned.

The People of the State of California v. *John Phillips. In Police Court. Charge of battery.*

1885, March 9, defendant arrested. March 10, continued to March 17. March 17, defendant demanded jury trial, and case continued to June 25. June 25, case dismissed.

People of the State of California ex rel. William Irwin et al. v. *George W. Prescott et al. No. 15603, in Superior Court, Department No. 3.*

Action of ejectment brought to recover possession of lot of land bounded by Francisco, Kearny, Bay, and Montgomery Streets, if produced.

1885, July 27, complaint filed and summons issued. There are a large number of defendants, part of whom are non-residents. Personal service has been had upon the resident defendants, and J. P. Hoge, Esq., has been appointed guardian ad litem of the minor defendants. October 20, affidavits of William Irwin and Ben. T. Rawlins for order of publication of summons filed and order made. October 21, first publication of summons occurred and summons mailed to each non-resident defendant.

1886, January 11, proof of publication and mailing summons filed. January 21, answer of certain defendants received. February 1, answer of certain defendants received. April 10, summons served upon William A. Plunkett, as administrator, and admission of service and appearance received. April 16, answer of administrator received. Action is now at issue.

The People of the State of California ex rel. William Irwin et al. v. *John C. Merrill, as Executor of the last will of Martha B. Harris, deceased. No. 15708, in Superior Court, Department No. 4.*

Action brought to recover $312, dockage due from bark D. C. Murray, and penalties.

1885, August 10, complaint filed and summons issued. August 13, summons served. August 27, answer received. August 28, notice of motion, to strike out certain parts of answer, served. September 4, motion to strike out granted. September 14, amended answer received. October 23, motion for judgment on the pleadings submitted. October 27, brief of defendants received. November 7, brief of plaintiffs in reply served. November 13, judgment for plaintiffs, for $321, legal interest and costs. November 14, notice of judgment served. November 18, notice of entry of judgment given and cost bill served. 1886, February 17, transcript of judgment filed in the matter of the estate of Martha B. Harris, deceased.

Antone Starr v. *J. J. Cummings. No. 32287, in Justice's Court.*

1885, September 19, writ of attachment served upon Board.

James Brady v. *Joseph Docking, and James Cummings, partners under the firm name and style of Docking & Cummings. No. 32312, in Justice's Court.*

1885, September 22, writ of attachment served upon Board. 1886, May 18, order to show cause served upon Board, under Section 717, of the Code of Civil Procedure, and the Board filed an answer thereto. June 11, hearing had and submitted. June 26, brief on behalf of Board filed.

R. Leishman v. *J. Docking and J. J. Cummings, partners doing business under the firm-name and style of Docking & Cummings. No. 16030, in Superior Court, Department No. 6.*

1885, writ of attachment served upon Board.

John Rowen v. *C. L. Crisman. No. 34557, in Justice's Court.*

1886, March 24, writ of attachment served upon Board. April 6, writ dismissed.

A. D. Moore v. *David Finley. In Superior Court.*

1886, April 2, writ of attachment served upon Board. April 6, writ dismissed.

The People of the State of California ex rel. William Irwin et al. v. *Carl Hansen. No. 35259, in Justice's Court.*

Action to recover for tolls for use of Third and Berry-Streets Wharf.

1886, May 15, complaint filed, summons issued and served, claim paid in full. On same day I paid the money over to the Secretary of the Board and dismissed the action.

RECAPITULATION.

Number of actions pending in which the Board is plaintiff	13
Number of actions pending in which the Board is defendant	5
Total number of actions pending	18

Respectfully submitted.

T. C. COOGAN,

Attorney for the Board of State Harbor Commissioners of the State of California.

REPORT

OF THE

STATE BOARD OF EQUALIZATION

FOR 1885 AND 1886.

STATE BOARD OF EQUALIZATION.

C. E. WILCOXON, Chairman.

JOHN MARKLEY, CHARLES GILDEA,

L. C. MOREHOUSE, JOHN P. DUNN, Ex Officio.

E. W. MASLIN, Secretary.

SACRAMENTO:
STATE OFFICE........JAMES J. AYERS, SUPT. STATE PRINTING.
1886.

REPORT.

Office of the State Board of Equalization,
Sacramento, November 1, 1886.

To his Excellency George Stoneman, *Governor of California:*

Sir: The State Board of Equalization has the honor to submit the following report for the years 1885 and 1886:

This report is the last act of the official career of the present State Board of Equalization. The valuations of property for the above named two years, and the agricultural statistics, will be found in appropriate tables.

Since the last report the members of the Board have visited every county in the State, and have made careful, and we believe, accurate investigations as to the ratio of full cash value at which property has been assessed. In 1885 we found it necessary to increase the entire assessment rolls of Alameda, Kern, Lake, Los Angeles, Napa, San Francisco, Santa Barbara, Santa Clara, and Sonoma Counties to the extent of $49,205,185.

In 1886 no increase was made, as by reference to the table of percentage of increase and decrease of valuations, it is seen the decrease was so slight as not to warrant any interference by the Board. In several instances where the decrease was apparently large, with the exception of one county, the decrease seemed warranted by the facts which need not here be recounted.

ASSESSMENT.

The assessment of the property of the State is not up to the "true cash value," as every taxpayer knows who will compare the assessment of his own property with the value he fixes upon it. We have endeavored to proceed gradually and cautiously in raising the standard of value, and thus to educate both people and Assessors to the acceptance of the true rule without too much disturbance of business and industrial relations.

The valuations, after the increase by the Board, for the years respectively in which the State Board has been in existence, are as follows:

	Property.	Railroads.	Total Valuation.
1880	$635,028,554	$31,174,120	$666,202,674
1881	623,861,395	34,829,664	658,691,059
1882	579,870,449	27,602,313	607,472,762
1883	724,746,947	40,017,000	764,763,947
1884	770,364,265	50,746,500	821,110,765
1885	810,476,634	49,035,750	859,512,384
1886	768,395,600	48,051,100	816,446,700

It will be perceived that the assessment of property other than railroads increased from 1880 to 1886 $133,367,046; and the assessment of railroads,

$16,876,980 being a total increase of $150,244,026. The assessment for 1887 will show a further increase. As people are educated to the perception that a full cash value assessment is the only means of effecting an equality of taxation the difficulties of Assessors will disappear.

EQUALIZATION.

The duties of the State Board are such as to excite the antagonism of nearly every property holder in the State, at least in those counties where the delinquencies of Assessors call for action by the Board. The strife between counties to reduce assessments has not ceased, and in all probability will not, so long as Assessors are elected or selfishness be a passion in the human breast. But we believe that we are gradually approaching a more equal adjustment of taxation as people are being educated to understand the necessity for the same, and to approve of a faithful performance of public duty by their official servants.

We have been subjected to much criticism in respect to our action in increasing the assessments of certain counties, notably the City and County of San Francisco.

Our methods for determining values have been assailed and declared incorrect. What better method could be devised than that of taking the valuation declared by parties to sales and mortgages, and the appraisers of estates, we cannot conceive. We were not solely guided by these indications; they were only elements to aid our personal observation and investigation. Take San Francisco, for instance. In one year's observation, we found 1,018 mortgages given for $6,575,998, upon property assessed at $5,161,630.

Taking the sales of real estate from January 1, 1884, to June, 1885, we found 1,157 sales, the purchase price of which was $8,150,475, and the property assessed at $4,503,054. The figures are conclusive answers to all the arguments advanced in favor of the judgment of one Assessor, or the favorite one of comparing the assessment of the city with the assessment of some city in the East.

The means of ascertaining the rates at which property has been assessed, cannot hereafter be used with so much certainty in the interior counties, and possibly in San Francisco. Appraisers in the counties liable to be increased in their assessments, as we found to be the case in the current year, either appraise the property down to the assessment ratio, or the Assessors assess the appraised property at a slight advance upon the appraised valuation.

Mortgagees, not having, since 1883, the apprehension that mortgages would be increased by the general increase by the Board, do not take the interest they did before in having other property assessed at its true value: though one would think that a class of people holding $80,000,000 in mortgages, assessed at face value, would deem it for their best interest to incite the Assessor to the performance of his strict duty. Again, owing to the rapid and permanent advance in real property, based upon the established certainty of the profits of horticultural and viticultural pursuits, money is loaned upon a wider margin than formerly upon the value of property.

There is one means of ascertaining whether property is assessed at its true value, which we recommend to the consideration of the Legislature, and that is, to provide that the consideration or amount of the purchase price should be named in the body of the conveyance. An affidavit of the truth of the statement might be appended to each deed, as is done in chattel mortgages, if it were not open to the objection against extra judicial oaths. However, some penalty should be prescribed for the neglect of the parties to state the true consideration. As this Board has to determine, within a limited time each year, whether property is assessed at its true value, the Legislature should furnish, so far as it can, the necessary means for such investigation.

INEQUALITY OF ASSESSMENT OF MERCHANDISE.

There is undoubtedly an inequality between the assessment of land and personal property, and also between personal property visible to the Assessor and capable of being valued by him, and the goods and merchandise of the merchant which the Assessor cannot see.

The real estate of the farmer and the city lot owner is exposed to view, and its value cannot be concealed from the Assessor. But the merchant is his own assessor. The Assessor cannot even view the wares, since the taxed person is only required to state the goods he had on hand on the first Monday in March. It has been, and still is, the custom not to demand an invoice of the goods. The oath administered to each person assessable is to the effect that the statement contains a true account of his property, but he is not required to state its value. Each farmer is asked the number of horses, cows, etc., and testifies under oath to the statement. In respect to the merchant, there is no effort made to ascertain the quantity of goods assessable. The Assessor merely asks him the value, which question the merchant may or may not answer, as he pleases. The remedy is difficult to suggest. It is certainly true that the merchant should not be his own assessor. Means should be provided whereby the quantity and value of the merchandise should be disclosed. There would be no hardship if the law should provide that each person having personal property on the first Monday in March, not exposed during assessment time to the inspection of the Assessor, should make an inventory of the same on that day and be required to make oath to the amount and the value of the same.

That the merchandise in the State is not adequately assessed may be presumed from a glance at the assessed value of landed property in the country, and cities and towns, respectively. In the country in 1886 the value of the real estate and improvements is $323,153,347, and in the cities and towns $293,385,121, the latter nearly 91 per cent of the country assessment. Cities and towns being merely places for barter, one would expect that merchandise would be the larger part of the assessment of personal property. Or, in other words, we should expect that, if the vocation of bartering and trading created nearly three hundred million dollars of real property values, that merchandise would bear a proportion to other personal property nearly akin to the relative proportion between landed property in cities and country. Yet such is not the case. The assessment of personal property, exclusive of money and solvent credits, is $129,258,814, while the value of merchandise is only $30,755,495, of which $15,712,783 is assessed in San Francisco.

BONDS.

There is another class of property that escapes assessments. The returns show that State, city, and county bonds to the amount only of $1,126,727 were assessed in 1886. The Controller reports that the funded indebtedness of counties alone amounts to $7,995,331. As the State holds in trust $1,313,500, leaving $6,681,831 of county bonds subject to assessment, it would appear that there remains $5,555,104 of county bonds which were not assessed. Add to this sum the amount of city bonds, and the amount which escapes is enormous. Are all the railroad bonds held out of the State? The question is, where are these bonds gone? Surely they are not gone out of the State to the extent indicated. The principle of assessing bonds is open to criticism; as we see, they escape assessment. When a county sells her bonds, the rate of interest paid thereon is based upon the theory that the rate is such as will meet the demands of capital, to which is added the supposed State and county taxes. In practice, the people of a county pay an interest sufficient to recompense capital, and to pay the taxes back to the County and State Treasuries, but which, in fact, are never paid. For the purpose of sustaining the principle of equal taxation, we inflict upon ourselves an injury, and practically provide for inequality.

MONEY.

Money also escapes assessment. The amount of money assessed as on hand on the first Monday in March, as reported by Assessors, was $9,069,601. A few Assessors failed to report, but it is certain that not more than the sum of $10,000,000 was assessed—the reports vary from $9,500,000 to $10,088,048. It is certain that the banks alone did not report the true amount. From the Bank Commissioners' Report for 1886, we learn that the banks of the State had, of their own money on hand, on the first July, 1885, $12,883,547; on first January, 1886, $11,896,326, and on the first July, 1886, $15,985,299—an average of $13,588,395. If we add to the "money on hand" on the first January, 1886, the sum of $8,151,173, which the Commissioners say is in other banks, we have the sum of $20,047,499, which must be taken as the exact sum in the banks on that day—only two months before assessment day. When we add to this sum the amounts severally held in private hands, we gain an idea of the disparity between the actual money in the State and the amount assessed. As a help to the estimation we give the amount due depositors. On first January, 1886, $98,273,077, and on first July, 1886, $103,331,155. Deducting the amount of "money on hand" and in other banks, we have $83,283,656, as, in theory, money circulating among the people. But as money, by passing from hand to hand, is repeated as deposits, only a part of this sum is actual cash; but the exact amount we cannot state. But it is sufficient that enough of it is actual cash to warrant us in stating that at least $25,000,000 was in this State on the first Monday in March, of which only $9,500,000 was assessed.

In 1880, money was assessed to the amount of $24,678,330; in 1881, $13,597,566; in 1882, $12,702,056; in 1883, $11,152,463; in 1884, $10,874,971; in 1885, $10,483,087; and in 1886, $10,088,048, though it may be as low as $9,500,000. At this ratio of decrease, in five years there will be no money in the State.

These illustrations may furnish food for reflection to those who are studying the problem of taxation, and especially to those who contend that personal property should not be assessed. It is certain that its assessment is productive of inequality and offers a strong incentive to perjury.

EFFECTS OF EQUALIZATION.

The objection to the increase of assessments is often made that, no matter how high the assessment is, the Supervisors will continue to levy about the same rate of taxation as before: or, in other words, that a high assessment is a temptation to extravagance in the administration of county affairs.

We have prepared a table, which can be found in the appendix, showing the rates of county taxation from 1875 to 1886, inclusive. It is worthy of study. In the majority of the counties the rate of taxation actually increased from 1874 to 1879, while since the adoption of the Constitution and the creation of the Board, the rates of taxation, in every county except Alpine, Del Norte, Nevada, Placer, Santa Cruz, Shasta, Sierra, Siskiyou, Trinity, and Yuba have decreased to a remarkable degree. Alpine, Del Norte, Trinity, and Shasta, are counties of sparse population, and have not increased in wealth; Siskiyou, Santa Cruz, and Yuba are about even. Nevada received a blow in the stopping of hydraulic mining; and Placer's rate of taxation is caused by the large sum of railroad taxes unpaid. The table establishes the fact of the beneficent influence of the Board. At this present writing the State of California is receiving a large addition to her population from immigration from the Eastern States. The immigrants naturally seek homes in the counties where the rate of taxation is low. It is useless to explain that the sum of money to be raised is the same whether the rate is high or low; the low rate will be the attractive factor in the decision of location. Again, one of the means of encouraging the material growth of a county is the low rate of interest at which money can be borrowed. This is one of the secrets of the rapid and wonderful advancement of Southern California. It stands to reason that the banks and capitalists will not loan money readily to the farmers and business men of a county where the rate of taxation is high. To develop the resources of a State, money must be had at a low rate of interest; and this low rate can only be secured by an honest and true assessment of property.

A change of public sentiment is taking place. Self interest, as well as a sense of justice, is effecting the change, and we believe that the State Board will soon be recognized by the majority of the people as an arm of justice instead of oppression.

TELEGRAPH COMPANIES.

The Board assess railroads operated in more than one county. The reason is apparent on the face; and the same reason applies to the assessment of corporations doing business in more than one county.

Telegraph and telephone companies conduct their business in nearly all the counties of the State, and should be assessed by the State Board. The necessity of one body having the power to assess, as railroads are assessed, telegraph and telephone companies, is manifest at a glance at the following tables.

The first table shows the number of miles, total assessment, and rate per mile, of the Western Union Telegraph Company.

WESTERN UNION.

COUNTIES.	Miles.	Assessment.	Rate per Mile.
Alameda	93.40	$4,680 00	$50 10
Butte	56	19,980 00	156 78
Calaveras	20	600 00	30 00
Colusa	42	1,680 00	40 00
Contra Costa	31.75	2,447 00	77 10
Humboldt	90	1,800 00	20 00
Inyo	74.25	2,970 00	40 00
Los Angeles	152	14,540 00	95 65
Marin	79	4,700 00	59 50
Mariposa	37	500 00	13 51
Merced	36.75	1,838 00	50 00
Mono	34	1,700 00	50 00
Monterey	115	4,575 00	39 78
Napa	46	2,024 00	44 00
Placer	106.75	21,350 00	200 00
Sacramento	80	4,000 00	50 00
San Benito	15	1,275 00	85 00
San Diego	216	7,640 00	35 37
San Luis Obispo	121	5,082 00	42 00
San Mateo	25.10	9,205 00	366 73
Santa Barbara	113	8,500 00	75 30
Santa Clara	76.88	12,265 00	159 00
Santa Cruz	40	1,400 00	35 00
Sierra	50	500 00	10 00
Solano	74	4,810 00	65 00
Stanislaus	33.33	3,000 00	90 00
Sutter	10	500 00	50 00
Trinity	300	1,012 00	3 00
Tulare	70	3,500 00	50 00
Yolo	44	2,000 00	45 45
Yuba	44	1,240 00	28 18
Totals	2,326.21	$151,313 00	$65 04

Amador, El Dorado, Fresno, Mendocino, Nevada, San Bernardino, San Joaquin, Shasta, Siskiyou, Sonoma, Tuolumne, and Ventura report assessments to the amount of $70,846; but as the Assessors failed to state whether the assessments were of the Western Union or railroad lines, we are not able to use the reports for the above table.

Suffice it to say, that the table shows a range of assessment, per mile, from $3 to $366 73, and that the average valuation is $65 04.

Here is a property in value running into the millions assessed for about $200,000, not enough to pay for the poles.

TELEPHONE LINES.

The following table shows the assessment of telephone lines:

Counties.	Miles.	Assessment.	Assessment per Mile.
Alameda	58.50	$4,370	$74 10
Contra Costa	16.50	1,980	120 00
Los Angeles	110.00	3,300	30 00
Marin	25.00	1,500	60 00
Napa	10.00	450	45 00
Sacramento	19.00	950	50 00
San Bernardino	12.00	600	50 00
San Luis Obispo	13.25	465	35 08
San Mateo	25.10	2,510	100 00
Santa Clara	48.50	2,350	48 45
Solano	49.00	2,700	55 10
Totals	386.85	$21,175	$54 73

San Joaquin reports assessment of $2,850, and Santa Cruz $2,280. Neither state number of miles. The whole value of the telephone system in the State, therefore, is reported to be $26,307. Excluding the last counties named, the average assessment per mile is only $54 73. Comment is unnecessary.

In a few instances, as in Butte, Placer, and San Mateo, some attention seems to have been paid to the assessment of the franchises of the Western Union Company, otherwise the property seems to have been assessed on the same basis as old pipes of water and gas companies are assessed, to wit: as so much old iron. The difference in the value per mile affixed by the various Assessors, is a strong argument why the assessment of these corporations should be placed in the hands of this Board. The Constitution seems to inhibit the exercise of the power by the Board, as it provides that "All property * * * shall be assessed in the county in which it is situated;" but as the franchise is not specially located in one county, there seems to be no reason why naked property of wires and poles may not be assessed in the several counties, and the franchise by the State Board. It may be argued that the State Board might indicate to the Assessors the value of the property, and that brings us to the question of the power of the State Board to lay down rules for the guidance of Assessors and Supervisors.

RULES FOR REVENUE OFFICERS.

Assessors and Supervisors should be made to understand that, so far as taxation is affected, they are the servants and agents of the State.

We find some difficulty in enforcing the rules we lay down for the guidance of Assessors and Supervisors. It is true that the law declares that we may make such rules and regulations, but there is no penalty for their non-observance. It is anomalous that an agent should have greater power than the principal, yet in practice such is the case in respect to the relation between the State and the revenue officials of the counties. These officials labor under the impression that they are merely county officers, and not amenable to the State, and upon their judgment and valuations rests the taxing system of the State. Unless Assessors are controlled by the State Board, the principle of equality will constantly be violated. It is true that each county elects an Assessor, but the State intrusts to that Assessor the duty of valuing property for State taxation, for which the State liberally compensates each county. Yet the State is almost powerless, except by a general increase of value, to remedy any wrong, and entirely so to prevent an improper assessment, or to insist upon the assessment of any species or class of property. For instance: An Assessor of Alameda County wrote to the State Board that a Vice-Consul of Brazil claimed exemption from taxation in that county, and that the Consul stated that the Assessor of San Francisco did not assess him on account of his consular privileges. We wrote as early as June twenty-second to the Assessor of San Francisco for information, upon what grounds he allowed such exemption. Now, an answer was due at once, in order that we might, before the first Monday in July, direct that an assessment should be made. No answer was received until August eighteenth, more than a month after the close of the books.

The position that Mr. Holtz took was "that the custom in San Francisco is to exempt from taxation such property of Consuls as is strictly personal, as furniture of his residence, office belongings, clothing," etc. In support of his position, he cites the treaty with Brazil, which is as follows: "It is likewise agreed that the Consuls * * * shall be exempt from all public service, and also from all kinds of taxes, imposts, and contributions, except those which they shall be obliged to pay on account of commerce, or their property." Of course Mr. Holtz had not the slightest power to exempt the Consul from assessment. We cite this case as an illustration of the necessity that, the Board having the power to instruct Mr. Holtz to make the assessment, there should be a penalty attached for a disobedience of the order of the Board.

We cite another instance: In San Luis Obispo, the San Luis Obispo Hotel Company owned a hotel, which was assessed for $25,000, and the personal property in the hotel was assessed at $10,500. The hotel and a part of the furniture were destroyed by fire after the assessment was made in 1886. The company asked for a reduction, and the Supervisors reduced the real estate assessment to $1, and the assessment of personal property to $2,000. Here was an usurpation of authority without the slightest shadow of right, and the members of the Board of Supervisors should be made to respond to the State for the loss of the taxes. It is true that it was a hardship upon the owners of the hotel, but the company's case did not differ from that of many persons who lose their property after assessment. There should be no trifling or juggling with the law to suit the views of every Assessor or Supervisor. Let the theory of the subjection of revenue officials be crystallized into a distinct and positive provision of the Codes.

RAILROADS.

For comparison we insert a table showing the rate per mile of the assessment of railroads from 1880 to 1886, inclusive.

The California Southern, running from National City, San Diego County, to and past Colton in San Bernardino County, was not assessed until 1883. In the Winter of 1883-4 the storms almost entirely destroyed the road, hence the low rate of assessment for 1884. As the road was repaired the valuation increased. The Carson and Colorado, San Joaquin and Sierra Nevada, and Nevada and California, were first assessed by the present Board.

The number of miles of road assessed in 1880 was: broad gauge, 1,854.74; narrow gauge, 168.715; total, 2,023.455, and valued at $31,174,141 21.

In 1886 the number of miles was: broad gauge, 2,389.24, and narrow gauge, 358.17; total, 2,747.41, and valued at $47,971,100; being an increase of miles of 35.7 per cent, and of valuations of 53.9 per cent.

While the discussion of the status of the suits begun to collect the taxes due from the several railroad companies belongs to another department, it may as well be said here, that the grounds upon which the Supreme Court of the United States decided the recent case, to wit: that the fences and ferryboats had been assessed by the State Board of Equalization, has no bearing upon the assessments for 1883, 1884, 1885, or 1886. We were aware that the point would be taken by the defendant, and formally took such action when we met in 1883, and each succeeding year, as to exclude from our computations every element of valuation save such as belonged to the franchise, roadway, roadbed, rails, and rolling stock.

The Atlantic and Pacific Railroad Company has a lease, or at least is in possession of and operates so much of the Southern Pacific Railroad as runs from Mohave to the Needles or the Colorado River. We assessed the company for its rolling stock in 1886, used upon said road. We also assessed the Pullman Palace Car Company for an interest in certain rolling stock, owned by it with the Central Pacific Company and used in this State. Both companies, their agents state, will contest the legality of the assessment.

The following table shows the increase in the assessment per mile of the various railroads under the present Board.

Table showing the Rate Per Mile of the Assessments of Railroads by the Board.

	1880.	1881.	1882.	1883.	1884.	1885.	1886.
Amador Branch	$10,500 00	$10,200 00	$6,001 00	$6,074 07	$6,500 00	$6,000 00	$6,000 00
California Pacific	16,011 56	16,500 00	13,000 00	16,000 00	17,777 77	17,777 77	17,777 77
California Southern				4,729 62	1,156 06	3,468 20	6,000 00
Central Pacific	20,264 00	25,000 00	21,604 26	29,889 40	38,312 95	34,338 51	31,216 83
Northern California	7,434 08	6,002 00	4,501 00	4,452 83	3,584 90	3,773 58	3,773 58
Northern Railway	13,060 00	13,500 00	10,000 00	13,477 08	15,498 65	15,498 65	18,194 07
Pajaro and Santa Cruz	7,487 75	4,501 00	4,501 00	4,725 89	7,088 84	5,733 94	5,733 94
Sacramento and Placerville	11,115 44	10,001 00	6,001 00	5,979 38	6,000 00	6,500 00	6,185 56
San Francisco and North Pacific	13,851 09	14,000 00	12,000 00	12,054 05	14,054 05	14,054 05	12,972 97
San Pablo and Tulare	11,200 00	12,000 00	10,000 00	15,217 39	20,652 17	19,565 21	19,565 21
Stockton and Copperopolis	13,390 82	13,000 00	8,500 00	8,962 58	9,522 74	8,962 58	7,842 25
Southern Pacific	14,733 15	16,500 00	11,512 97	14,929 82	17,963 47	17,763 47	17,763 47
Vaca Valley and Clear Lake	8,394 12	8,300 00	8,300 00	6,386 55	6,386 55	6,654 99	6,654 99
Carson and Colorado					1,997 76	1,997 76	1,997 76
Nevada and California						1,500 00	1,500 00
Nevada County Narrow Gauge	10,054 67	9,000 00	7,500 00	6,666 66	5,111 11	5,111 11	5,111 11
North Pacific Coast	7,943 79	5,501 00	5,501 00	5,573 77	5,573 77	5,551 60	4,982 20
Pacific Coast				5,320 81	5,320 81	5,320 81	4,694 83
San Joaquin and Sierra Nevada				4,125 41	4,125 41	4,061 62	4,060 60
South Pacific Coast	11,144 05	7,001 00	6,801 00	11,037 52	11,037 52	12,141 28	11,037 52

MAPS.

The Political Code requires the Supervisors to procure maps for the use of the Assessors. Experience has taught us the benefit of such maps, and that the cost of the same is met in the counties where they are obtained, by the taxes received even the first year from land discovered subject to taxation. Supervisors do not obey the law.

The Code should be amended so as to direct the Assessor to procure the maps, and that the claim for the cost of the same, should be paid out of the County Treasury.

STATE PROPERTY.

We earnestly ask the attention of the Legislature to the following section: 3897 Political Code provides that "whenever the State shall become the purchaser of property sold for taxes, the State Board of Equalization may direct the District Attorney to bring an action to recover the possession of the same. In case of judgment * * * the Board may order the property sold by the County Treasurer, but no bid shall be received at such sale for less than twice the amount of the taxes, costs, interest, and expenses of sale."

This office each year receives lists of property sold to the State, mostly possessory claims on the land of the United States. These claims are listed the succeeding year and are lost to the State for assessment purposes.

But many times land is sold to the State of the value of a few hundred dollars, to which there is a good title. In the course of time application is made to the Board for the sale of the property. Before we can order a sale an action has to be begun, but the District Attorney must be paid a fee for beginning the suit, costs of advertising summons must be secured, and so we negotiate with the would-be purchaser for the sale at such sum or direct him to agree with the District Attorney to pay such sum as will meet the requirements of the law. Such procedure is at once humiliating and uncertain. The whole matter should be under the control of the Controller, who is the financial agent of the State, and the law simply should require the Controller to direct the County Treasurer to sell the land to whomsoever, not the orignal owner, will pay the taxes for two years and costs. The owner can redeem under another law.

STATEMENTS TO ASSESSORS.

We desire again to call the attention to some needed amendments to the Code.

The whole assessment system is based on the supposition that each taxed person will submit a statement, under oath, to the Assessor, of the property owned by him on the first Monday in March. The penalty for omitting to render such statement, as provided by Section 3633, is to have the assessment fixed by the Assessor, which cannot be changed by a Board of Supervisors. This has no terror for the kind of persons who refuse statements. To refuse to give statements in San Francisco is looked upon by some as a business proposition. The person may have money or bonds not perceivable by the Assessor, or a large stock of goods, the amount and value of which is not known to the Assessor. It is apparent that the estimate fixed by the Assessor must be, in all cases, far below the true amount of property, or the value thereof. Many rich men escape with a mere nominal assessment. Any person who refuses to render a statement should be proceeded against summarily; first, by action in Court to compel a statement, and second, by a criminal prosecution, and the minimum fine should be severe.

The Assessor, who fails to exact from any one a statement, or fails to exact the oath, should be severely punished.

STATISTICS.

The State Board is required to report to the Governor the separate values of property, and the number, kind, and value of personal property. To aid us in this labor, the Assessor of each county is required to report the facts to us. (See Section 3655, Political Code.) It would exhaust your patience to detail to you the labor and fruitless care expended to obtain the facts required. Statistics are conceded on all hands to be of the highest importance to the State. The producer, upon an intelligent study of the past productions of the State, can limit, or extend with profit, his future operations. The middlemen and seller can reasonably predicate their ventures upon the tables of production, and the consumer is benefited by the inferences to be drawn as to cost and price of commodities from the excess or deficiency of supply. But to be of value, the statistics must be entirely trustworthy. In this respect, we regret to say that the reports from Assessors are of less value than anything published by the State. There are two causes which produce the defect. One is the insufficient salary or compensation allowed Assessors, his work is hurried between the first of March and the first of July, his deputies are paid a sum certain per day, not to exceed a stipulated amount fixed by the Board of Supervisors, and he is pushed to the extreme to complete his work. Another cause is the indifference of the public to the work. The taxpayer will not inform the Assessor how many trees are planted on the farm, how many acres are cultivated, or any fact which he thinks tends to establish the value of his taxable property.

To publish the reports of the productions of the State, as they have been prepared and sent to former Boards and to us, is a sheer waste of money. The reports we send to other States, and are misleading to those who are interested in the soil and varied productions of the State. Probably their well known untrustworthiness in the State has saved us from any commercial or agricultural ventures based upon statistics.

Something ought to be done at this session of the Legislature, either to omit the statistics, or pay the Assessor for doing the definite work required, or provide a penalty for not reporting accurately.

The fault is not alone with Assessors. As we before stated, the people will not report accurately upon facts which they suspect will be used to augment their assessments.

Probably a separate bureau to take the industrial census of the State would prove effective, if the facts were obtained by officers other than the Assessor.

AUDITORS' REPORTS.

The State Board fixes the rate of State taxation upon the statements received from County Auditors of the assessed value of the property in each county. This duty of the Auditors is defined in Section 3728 of the Political Code, and the penalty, which is the forfeiture of $500, for omission of performance, is provided for in Section 3737.

If any Auditor fails to forward the statement, the Board has to suppose an amount, which may be either below or in excess of the actual value of the property.

In each year since the formation of the Board a number of the Auditors have failed, at the proper time, to forward statements. No such want of preciseness should enter into the computation of the taxation of the State.. The penalty seems to have no effect, and we believe that if a failure to perform the duty should constitute a misdemeanor it would have a wholesome effect. Punishment for neglect, as a crime, of such an officer, would be more effective than the dread of a civil action, or, what would be equally effective, a provision that a notice from the Board to the Supervisors of the neglect should work a forfeiture of one month's salary.

SECTION 3654

Of the Political Code should be repealed. It provides for a wasteful expenditure of time and money. The Board of Supervisors meets on the first Monday in July, when the assessment roll is delivered to the clerk of the Board, and then adjourns until the day, which is generally ten days later, set for the next meeting. The law gives ample notice to all taxpayers, and if the Board does its duty, there is enough to keep it busy during the whole time allotted by law for its session.

POLL TAXES.

The Political Code, in respect to the collection of poll taxes, needs amendment. Section 3840 empowers the Assessor to collect poll taxes from the first Monday in March of one year to the first Monday in January of the ensuing year.

On the third Monday in January, the Auditor delivers a delinquent list of poll taxes to the Tax Collector, who must collect the taxes in the same manner and at the same time as delinquent property taxes are collected.

When the Assessor demands a poll tax from a property owner, the latter frequently refuses payment on the ground that the poll tax is a lien on his property. When the Collector begins to collect the property tax in October, he refuses to collect the poll tax because he has no authority to do so, and the property owner merely pays the property tax. The Assessor does not find it profitable to traverse the county in search of property owners delinquent for poll taxes, and although the system provided seems perfect, yet, from some cause not easily explained, many poll taxes remain uncollected. Either the Assessor should collect the entire poll taxes, or the Collector should have the sole power to collect poll taxes from property owners after the fourth Monday in October.

PROVISION FOR INFORMATION.

We earnestly request the Legislature to provide some means by which we can obtain such information as we desire in relation to the revenue service. Auditors are required to report simple values at a certain time, and Assessors to make report before July of their assessments of classes of property.

We are often in need of information, which may or may not be given, as the courtesy or public spirit of the officers may permit. For instance, when assessing the various railroads, we desire to ascertain the amount of the assessment of land, houses, and personal property of the various railroad companies, made by the Assessors, or the miles of telegraph lines, but we have no power to enforce our wishes. While it is true that there is a penalty in the nature of a criminal action for neglect of a legal duty, yet there should be a more general statement of the duties of Auditors and Assessors in relation to the Board, and the performance of those obligations should be enforced by a penalty of forfeiture of salary, as before indicated.

TRAVELING EXPENSES.

We again urge upon the Legislature the necessity of appropriating enough money to give efficiency to the Board. Section 3702 of the Political Code, passed April 3, 1880, provides that "each member of the Board is entitled to repayment of his actual expenses incurred by him in traveling in the discharge of his duties, not to exceed annually one thousand dollars." There are at least four members of the Board, and some of the time the Controller and Clerk, engaged in visiting the several counties, from March until August of each year. The appropriation should, therefore, be, in strict conformity to law, $10,000 for each two fiscal years. Yet the Legislature of 1883 appropriated only $2,000 per annum, and the Legislature of 1885 increased it only $250.

It is preposterous to expect five and sometimes six persons to visit the counties and investigate assessments each year, for the sum of two thousand dollars.

While the several members are traveling on separate circuits they have no means of knowing when the appropriation is exhausted, and in the Summer of 1884 we incurred expenses to the amount of $800 for which we were not reimbursed until late in the Spring of 1885. The incoming Board, having to inform itself, must travel, and the appropriation for traveling expenses should be not less than $8,000—and $1,000 for contingent expenses—for the next two years.

CLAIM OF ROGERS AND BAGGETT.

In 1885 the State Board of Equalization, by an order, increased the assessment of the City and County of San Francisco, and by order directed the Auditor of said city and county to add the percentage of increase to the assessment. He refused to do so, alleging, among other things, that the Board was an unconstitutional body. The authorities of other counties whose assessments we had raised, took notice of the refusal of the Auditor, and, as we learned from the country press, tendered him legal and pecuniary assistance to overthrow the authority of the Board. If his position could be maintained, the railroad assessments made by the Board, as well as the assessments of the State, would be illegal, and the whole revenue system overturned.

Several members and the Clerk of the Board proceeded to San Francisco and consulted with the Attorney-General. That officer declared that he had not the time to attend to the matter, being busy with other legal matters, and directed that Mr. W. T. Baggett be consulted.

Accordingly we took advice from Mr. Baggett, who drafted a petition to the Supreme Court for a writ of mandate directed to the Auditor, and ordering him to show cause why a peremptory writ should not issue, commanding him to obey the instructions of the Board. The question was new, important, and so momentous in its results, that the Board deemed it wise to have additional counsel, and we advised with Mr. Arthur Rogers, an eminent attorney of the San Francisco bar. That gentleman agreed to attend to the matter jointly with Mr. Baggett in the Supreme Court, which he did, and to look to the Legislature for his compensation.

The cause was heard in the Supreme Court, and the peremptory writ was ordered issued, and so the authority of the Board and the constitutionality of the amendment of 1883 maintained.

Mr. Baggett has been paid by the Attorney-General, and Mr. Rogers has presented a claim for five hundred dollars, which we think is a reasonable fee, and we earnestly request the Legislature to pay the same.

This report is the last act of the official career of the present State Board of Equalization. There is little further to be said than is contained in the last report made to your Excellency in 1884. In that report there were several recommendations, especially intended for the attention of the Legislature, to the end that provision might be made for the more efficient service of the Board and the revenue system. No attention was paid by the Legislature to these recommendations, and it seems, from the experience of former Boards, as well as of the present one, almost useless to recommend any amendments to the revenue system of the State, unless the bills are prepared by the Board and followed by the individual exertions of the members, a practice which we have found not advisable, however necessary, since it subjects the advocate to much unjust criticism as well as thankless labor.

We again urge these amendments upon the Legislature, hoping they will receive the consideration desired.

We shall surrender our trusts at the close of our term, conscious that we have striven to do our whole duty to the people of the State, unbiased by local interests or prejudices, and without fear or favor.

Respectfully,

C. E. WILCOXON, Chairman.
JOHN MARKLEY.
CHARLES GILDEA.
L. C. MOREHOUSE.
J. P. DUNN, ex officio.

VALUATIONS FOR 1885.

VALUATIONS FOR 1885.

SCHEDULE A.

Showing Amount of Property upon which State Rate of Taxation was Based, and the said Rate for 1885 and 1886.

1885.

Value returned by Auditors	$761,271,449
Increase by Board	49,205,185
Value, exclusive of railways	$810,476,634
Assessment of railroads	49,035,750
Total value	$859,512,384

Basis of Taxation.

Value of property	$859,512,384
Deduct 12 per cent for delinquency	103,141,486
Amount upon which tax was based	$756,370,898

Amount to be Raised and Rate.

For the General Fund	$2,550,000
For the School Fund	1,300,000
For the Interest and Sinking Fund	269,070
	$4,119,070

Rate of Taxation—Thirty-seventh Fiscal Year.

For the General Fund	33.8 cents.
For the School Fund	17.1 cents.
For the Interest and Sinking Fund	3.5 cents.
Total State tax	54.4 cents.

1886.

Value returned by Auditors	$768,395,600
Assessment of railways	48,051,100
	$816,446,700

Basis of Taxation.

Value of property	$816,446,700
Deduct 12 per cent for delinquency	97,973,604
Amount upon which tax was based	$718,473,096

Amount to be Raised and Rate.

For the General Fund	$2,312,812
For the School Fund	1,300,000
For the Interest and Sinking Fund	420,630
	$4,033,442

Rate of Taxation—Thirty-eighth Fiscal Year.

For the General Fund	32.1 cents.
For the School Fund	18 cents.
For the Interest and Sinking Fund	5.9 cents.
Total rate	56 cents.

SCHEDULE B.

Showing the Net Sum subject to Increase, the Percentage of Increase, the Amount Added, and the Total Assessment, exclusive of Railroads, for 1885.

Counties.	Net Sum subject to Increase.	Percentage Increase.	Amount Added.	Total Amount, Exclusive of Railroads.
Alameda	$54,254,353	12½	$6,781,794	$61,333,400
Kern	5,054,826	15	758,223	5,861,240
Lake	2,908,894	10	290,889	3,249,349
Los Angeles	32,398,646	20	6,479,729	39,293,272
Napa	11,180,028	10	1,118,002	12,630,510
San Francisco	213,534,240	12½	26,691,780	254,301,128
Santa Barbara	8,282,085	15	1,242,312	9,620,477
Santa Clara	34,449,861	10	3,444,986	38,619,388
Sonoma	23,974,701	10	2,397,470	26,795,604
Increase			$49,205,185	

SCHEDULE C.

Showing Values of Property, with the Increase by the Board Apportioned to Several Classes.

1885.

Counties.	Real Estate and Improvements.	Personal Property.	Money.	Value of Preceding Col'ms.	Railroad Assessments.	Total Value of all Property.
Alameda	$54,685,861	$6,542,236	$105,303	$61,333,400	$3,076,787	$64,410,187
Kern	3,759,824	2,084,789	16,627	5,861,240	2,726,160	8,587,400
Lake	2,546,815	679,950	22,584	3,249,349		3,249,349
Los Angeles	32,421,990	6,696,945	174,337	39,293,272	2,530,940	41,824,212
Napa	9,729,948	2,800,926	99,636	12,630,510	728,889	13,359,399
San Francisco	192,843,479	54,806,351	6,651,298	254,301,128	215,212	254,516,340
Santa Barbara	7,820,925	1,781,591	17,961	9,620,477	129,828	9,750,305
Santa Clara	33,147,129	5,148,621	323,638	38,619,388	1,677,922	40,297,310
Sonoma	21,917,750	4,686,092	191,762	26,795,604	1,165,894	27,961,498

SCHEDULE D.

Showing Values of Real Estate and Improvements, as reported by Auditors for 1885.

(See next table for other values.)

COUNTIES.	Real Estate other than City and Town Lots.	Improvements on Same.	City and Town Lots.	Improvements on Same.	Value of all Real Estate.	Value of all Improvements.
Alameda	$14,161,072	$2,393,370	$20,438,955	$11,616,257	$34,600,027	$14,009,627
Alpine	146,087	65,660	3,260	9,800	149,347	75,460
Amador	1,837,763	621,360	162,135	444,195	1,999,898	1,065,555
Butte	10,193,910	801,635	539,255	1,046,775	10,733,165	1,848,410
Calaveras	1,542,020	427,301	57,807	213,314	1,599,827	640,615
Colusa	15,716,853	914,955	312,343	684,110	16,029,196	1,599,065
Conta Costa	8,550,922	1,688,432	405,565	446,515	8,956,487	2,134,947
Del Norte	459,445	170,830	45,655	143,338	505,100	314,168
El Dorado	1,118,810	569,690	106,395	304,580	1,225,205	874,270
Fresno	8,898,073	1,232,537	713,314	602,697	9,611,387	1,835,234
Humboldt	5,353,303	652,597	767,434	975,540	6,120,737	1,628,137
Inyo	301,103	225,460	23,495	103,865	324,598	329,325
Kern	2,588,353	362,112	120,998	197,950	2,709,351	560,062
Lake	1,598,889	463,105	85,718	167,575	1,684,607	630,680
Lassen	673,927	263,668	42,090	93,645	716,017	357,313
Los Angeles	13,521,716	2,770,657	6,367,780	4,358,172	19,889,496	7,128,829
Marin	5,693,372	812,190	1,177,207	899,610	6,870,579	1,711,800
Mariposa	736,792	290,543	14,865	70,200	751,657	360,743
Mendocino	4,807,692	945,524	236,338	521,714	5,044,030	1,467,238
Merced	7,538,560	566,662	373,242	342,709	7,911,802	909,331
Modoc	687,046	357,227	38,408	153,255	725,454	510,482
Mono	271,106	218,468	17,366	106,258	288,472	324,726
Monterey	5,982,004	716,095	797,708	545,109	6,779,712	1,261,204
Napa	5,232,481	1,796,984	728,019	1,087,924	5,960,500	2,884,908
Nevada	1,858,105	666,095	369,330	1,116,290	2,227,435	1,782,385
Placer	3,069,685	1,080,256	187,878	606,867	3,257,563	1,687,123
Plumas	937,276	434,318	33,900	161,081	971,176	595,399
Sacramento	9,865,040	1,414,595	4,025,935	5,899,950	13,890,975	7,314,545
San Benito	3,174,355	335,870	180,985	295,385	3,355,340	631,255
San Bernardino	3,436,482	1,246,022	431,236	542,750	3,867,718	1,788,772
San Diego	3,236,917	327,406	1,439,595	563,916	4,676,512	891,322
San Francisco	1,564,500	96,870	116,789,178	52,965,878	118,353,678	53,062,748
San Joaquin	21,409,482	1,451,592	3,429,866	3,241,229	24,839,348	4,692,821
San Luis Obispo	5,610,994	575,365	496,353	464,434	6,107,347	1,039,799

San Mateo	5,115,430	1,445,705	379,790	281,915	5,495,220	1,727,620
Santa Barbara	4,534,001	678,186	718,053	870,565	5,252,054	1,548,751
Santa Clara	16,436,135	3,452,028	6,416,586	3,829,005	22,852,721	7,281,033
Santa Cruz	3,930,350	711,890	984,710	838,470	4,915,060	1,550,360
Shasta	1,779,226	420,506	104,941	209,685	1,884,167	630,191
Sierra	701,097	250,493	40,220	215,205	741,317	465,698
Siskiyou	1,423,268	595,331	68,595	265,300	1,491,863	860,631
Solano	10,596,245	1,179,096	842,528	1,376,499	11,438,773	2,555,595
Sonoma	12,872,516	3,393,748	1,586,773	2,072,190	14,459,289	5,465,938
Stanislaus	10,180,192	799,426	545,716	812,325	10,725,908	1,611,751
Sutter	5,901,176	479,613	36,250	87,840	5,937,426	567,453
Tehama	4,874,449	592,674	399,227	576,760	5,273,676	1,169,434
Trinity	6,443,621	682,061	383,727	461,415	6,827,348	1,143,476
Tulare	421,680	195,188	17,042	49,070	438,722	244,258
Tuolumne	947,124	431,912	103,247	301,385	1,050,371	733,297
Ventura	2,880,363	285,290	182,509	188,032	3,062,872	473,322
Yolo	11,536,548	925,104	583,321	993,956	12,119,869	1,919,060
Yuba	2,562,130	402,990	395,650	778,595	2,957,780	1,181,585
Totals	$274,909,686	$43,876,652	$174,748,493	$105,201,099	$449,658,179	$149,077,751

SCHEDULE E.

Showing the Value of all Property as Reported by Auditors for 1885.

COUNTIES.	Real Estate and Improvements.	Personal Property, except Money.	Money.	Value of Preceding Columns.	Assessment of Railways by State Board of Equalization.	Total Value of all Property.
Alameda	$48,609,654	$5,836,649	$105,303	$54,551,606	$3,076,787	$57,628,393
Alpine	224,807	76,636	2,035	303,478		303,478
Amador	3,065,453	725,135	5,775	3,796,363	48,000	3,844,363
Butte	12,581,575	2,751,751	132,995	15,466,321	1,599,950	17,066,271
Calaveras	2,240,442	798,326	17,904	3,056,672	29,879	3,086,551
Colusa	17,628,261	3,798,252	134,347	21,560,860	973,470	22,534,330
Contra Costa	11,091,434	3,548,850	50,892	14,691,176	1,074,397	15,765,573
Del Norte	819,268	350,597	12,340	1,182,205		1,182,205
El Dorado	2,099,475	888,265	53,320	3,041,060	121,875	3,162,935
Fresno	11,446,621	2,907,490	76,376	14,430,487	2,406,327	16,836,814
Humboldt	7,748,874	2,315,143	150,935	10,214,952		10,214,952
Inyo	653,923	449,819	2,734	1,106,476	148,334	1,254,810
Kern	3,269,413	1,816,977	16,627	5,103,017	2,726,160	7,829,177
Lake	2,315,287	620,589	22,584	2,958,460		2,958,460
Lassen	1,073,330	884,551	8,575	1,966,456	9,000	1,975,456
Los Angeles	27,018,325	5,620,881	174,337	32,813,543	2,530,940	35,344,483
Marin	8,582,379	1,540,462	103,120	10,225,961	524,106	10,750,067
Mariposa	1,112,400	543,623	18,460	1,674,483		1,674,483
Mendocino	6,511,268	2,398,749	49,053	8,959,070		8,959,070
Merced	8,821,133	2,022,293	9,508	10,852,934	1,261,940	12,114,874
Modoc	1,235,936	1,288,201	6,573	2,530,710		2,530,710
Mono	613,198	287,203	13,098	913,499	66,666	980,165
Monterey	8,040,916	2,357,641	48,325	10,446,882	882,035	11,328,917
Napa	8,845,408	2,567,464	99,636	11,512,508	728,889	12,241,397
Nevada	4,009,820	1,168,985	80,840	5,259,645	1,134,727	6,394,372
Placer	4,944,686	1,687,803	109,563	6,742,052	3,890,681	10,632,733
Plumas	1,566,575	611,029	11,841	2,189,445		2,189,445
Sacramento	21,205,520	5,347,720	209,530	26,762,770	1,724,143	28,486,913
San Benito	3,986,595	1,318,225	17,185	5,322,005	313,525	5,635,530
San Bernardino	5,656,490	1,418,833	34,389	7,109,712	4,710,130	11,819,842
San Diego	5,567,834	1,461,836	42,154	7,071,824	3,206,214	10,278,038
San Francisco	171,416,426	49,541,624	6,651,298	227,609,348	215,212	227,824,560
San Joaquin	29,532,169	5,890,361	178,760	35,601,290	2,530,113	38,131,403
San Luis Obispo	7,147,146	2,333,083	29,253	9,509,482	210,172	9,719,654
San Mateo	7,222,840	2,715,920	68,485	10,007,245	445,863	10,453,108

Santa Barbara	6,800,805	1,559,399	17,961	8,378,165	129,828	8,507,993
Santa Clara	30,133,754	4,717,010	323,638	35,174,402	1,677,922	36,852,324
Santa Cruz	6,465,420	1,323,245	20,520	7,809,185	323,594	8,132,779
Shasta	2,514,358	1,180,278	49,825	3,744,461	2,019,105	5,763,566
Sierra	1,207,015	387,642	27,275	1,621,932	78,328	1,700,260
Siskiyou	2,352,494	1,572,920	142,287	4,067,701		4,067,701
Solano	13,994,368	2,798,573	78,929	16,871,870	1,083,620	17,955,490
Sonoma	19,925,227	4,281,145	191,762	24,398,134	1,165,894	25,564,028
Stanislaus	12,337,659	3,234,642	97,294	15,669,595	877,104	16,546,699
Sutter	6,504,879	1,381,754	77,085	7.963,718	343,385	8,307,103
Tehama	6,443,110	1,516,073	36,825	7,996,008	1,660,055	9,656,063
Trinity	682,980	404,412	20,223	1,107,615		1,107,615
Tulare	7,970,824	2,403,936	64,921	10,439,681	1,544,244	11,983,925
Tuolumne	1,783,668	628,184	24,470	2,436,322		2,436,322
Ventura	3,536,194	1,010,849	27,165	4,574,208		4,574,208
Yolo	14,038,929	2,243,554	485,822	16,768,305	952,901	17,721,206
Yuba	4,139,365	1,517,850	48,935	5,706,150	590,235	6,296,385
Totals	$598,735,930	$152,052,432	$10,483,087	$761,271,449	$49,035,750	$810,307,199

SCHEDULE F.

Showing Rolling Stock Owned by Corporations in 1885.

Name of Company.	Locomotives	Sleepers	Passenger	Emigrant and Smoking	Baggage, Express, and Mail	Caboose	Box Freight	Flat Freight	Dump, Hand, and Section	Other Rolling Stock
Amador Branch	------	------	------	------	------	------	------	------	------	------
California Pacific	12	------	12	4	6	1	37	152	------	70
California Southern	7	------	7	------	3	------	31	47	28	5
Central Pacific	151	21	103	50	37	70	1,852	1,513	418	5
Northern California	2	------	2	------	1	------	6	13	4	------
Northern Railway										
Pajaro and Santa Cruz	------	------	------	------	------	------	------	------	------	------
Sacramento and Placerville	3	------	1	------	1	------	31	34	------	18
S. Francisco and N. Pacific	13	------	16	4	3	------	63	213	58	15
San Pablo and Tulare	------	------	------	------	------	------	------	------	------	------
Stockton and Copperopolis	3	------	4	------	1	------	4	41	------	8
Southern Pacific	80	1	65	35	20	19	1,299	374	------	341
Vaca Val. and Clear Lake	1	------	1	------	1	------	5	10	8	------
Carson and Colorado	1	------	1	------	------	1	10	27	15	------
Nevada and California	2	------	1	------	------	1	7	8	------	60
Nevada Co. Narrow Gauge	3	------	2	------	2	------	20	25	------	4
North Pacific Coast	10	------	13	5	6	2	30	254	24	1
Pacific Coast Railway	5	------	3	1	1	1	18	120	12	------
San Joaquin and S. Nevada	3	------	1	1	1	------	25	48	6	------
South Pacific Coast	16	------	60	2	7	5	90	290	27	------
	312	22	292	102	90	100	3,528	3,169	600	527

SCHEDULE G.

Showing the Railways Assessed, Number of Miles in each County, Apportionment of Assessment to each County, and Total Assessment for 1885.

Names of Railroads and Counties.	Total Number of Miles.	Number of Miles in each County.	Value per Mile.	Apportionment to Counties.	Total Assessment.
Amador Branch	27.00		$6,000 00		$162,000
Amador		8		$48,000	
Sacramento		19		114,000	
California Pacific	112.50		17,777 77		2,000,000
Napa		41		728,889	
Sacramento		.50		8,889	
Solano		40		711,111	
Yolo		31		551,111	
California Southern	129.75		3,468 20		450,000
San Bernardino		18.89		65,514	
San Diego		110.86		384,486	
Central Pacific	640.68		34,338 51		22,000,000
Alameda		83.52		2,867,953	
Butte		45		1,545,233	
Fresno		61.06		2,096,710	
Merced		36.75		1,261,940	
Nevada		30.25		1,038,740	
Placer		112.75		3,871,668	
Sacramento		41		1,407,879	
San Francisco		2.46		84,473	
San Joaquin		56.75		1,948,711	
Santa Clara		8.50		291,877	
Shasta		58.80		2,019,105	
Sierra		2.15		73,828	
Stanislaus		22.63		777,081	
Sutter		10		343,385	
Tehama		40.54		1,392,083	
Tulare		12.65		434,382	
Yuba		15.87		544,952	
Northern California	26.50		3,773 58		100,000
Butte		14.50		54,717	
Yuba		12		45,283	
Northern Railway	148.40		15,498 65		2,300,000
Alameda		6.85		106,166	
Colusa		62.81		973,470	
Contra Costa		23.75		368,093	
Solano		16.95		262,702	
Tehama		17.29		267,972	
Yolo		20.75		321,597	
Pajaro and Santa Cruz	26.16		5,733 94		150,000
Monterey		1.16		6,651	
Santa Cruz		25		143,349	
Sacramento and Placerville	48.50		6,500 00		315,250
El Dorado		18.75		121,875	
Sacramento		29.75		193,375	
San Francisco and N. Pacific	92.50		14,054 05		1,300,000
Marin		16.85		236,811	
Sonoma		75.65		1,063,189	
San Pablo and Tulare	46		19,565 21		900,000
Alameda		1.40		27,392	
Contra Costa		36.10		706,304	
San Joaquin		8.50		166,304	
Southern Pacific	957.02		17,763 74		17,000,000
Fresno		17.43		309,617	
Kern		153.47		2,726,160	
Los Angeles		142.48		2,530,940	
Monterey		49.28		875,384	
San Benito		17.65		313,525	
San Bernardino		261.47		4,644,616	
San Diego		158.85		2,821,728	
San Francisco		7.36		130,739	
San Mateo		25.10		445,863	
Santa Clara		59.30		1,053,374	
Santa Cruz		2.15		38,192	
Tulare		62.48		1,109,862	

SCHEDULE G—Continued.

NAMES OF RAILROADS AND COUNTIES.	Total Number of Miles.	Number of Miles in each County.	Value per Mile.	Apportionment to Counties.	Total Assessment.
Stockton and Copperopolis	44.63		$8,962 58		$400,000
Calaveras		.66		$5,915	
San Joaquin		32.81		294,062	
Stanislaus		11.16		100,023	
Vaca Valley and Clear Lake	28.55		6,654 99		190,000
Solano		16.50		109,807	
Yolo		12.05		80,193	
Carson and Colorado*	107.62		1,997 76		215,000
Inyo		74.25		148,334	
Mono		33.37		66,666	
Nevada and California	9		1,500 00		13,500
Lassen		6		9,000	
Sierra		3		4,500	
Nevada County Narrow Gauge	22.50		5,111 11		115,000
Nevada		18.78		95,987	
Placer		3.72		19,013	
North Pacific Coast	70.25		5,551 60		390,000
Marin		51.75		287,295	
Sonoma		18.50		102,705	
Pacific Coast Railway	63.90		5,320 81		340,000
San Luis Obispo		39.50		210,172	
Santa Barbara		24.40		129,828	
San Joaquin and Sierra Nevada	35.70		4,061 62		145,000
Calaveras		5.90		23,964	
San Joaquin		29.80		121,036	
South Pacific Coast	45.30		12,141 28		550,000
Alameda		6.20		75,276	
Santa Clara		27.40		332,671	
Santa Cruz		11.70		142,053	
Totals	2,682.46	2,682.46			$49,035,750

---

* This and the six following roads are narrow gauge roads.

SCHEDULE H.

Showing amount of Railway Assessment each County received for 1885.

COUNTY AND RAILROAD.	Amount to County.	Total.
Alameda—		
Central Pacific	$2,867,953	
Northern Railway	106,166	
San Pablo and Tulare	27,392	
South Pacific Coast	75,276	
		$3,076,787
Amador—		
Amador Branch	$48,000	
		48,000
Butte—		
Cental Pacific	$1,545,233	
Northern California	54,717	
		1,599,950
Calaveras—		
Stockton and Copperopolis	$5,915	
San Joaquin and Sierra Nevada	23,964	
		29,879
Colusa—		
Northern Railway	$973,470	
		973,470
Contra Costa—		
Northern Railway	$368,093	
San Pablo and Tulare	706,304	
		1,074,397

SCHEDULE H—Continued.

COUNTY AND RAILROAD.	Amount to County.	Total.
El Dorado—		
Sacramento and Placerville	$121,875	$121,875
Fresno—		
Central Pacific	$2,096,710	
Southern Pacific	309,617	2,406,327
Inyo—		
Carson and Colorado	$148,334	148,334
Kern—		
Southern Pacific	$2,726,160	2,726,160
Lassen—		
Nevada and California	$9,000	9,000
Los Angeles—		
Southern Pacific	$2,530,940	2,530,940
Marin—		
San Francisco and North Pacific	$236,811	
North Pacific Coast	287,295	524,106
Merced—		
Central Pacific	$1,261,940	1,261,940
Mono—		
Carson and Colorado	$66,666	66,666
Monterey—		
Pajaro and Santa Cruz	$6,651	
Southern Pacific	875,384	882,035
Napa—		
California Pacific	$728,889	728,889
Nevada—		
Central Pacific	$1,038,740	
Nevada County Narrow Gauge	95,987	1,134,727
Placer—		
Central Pacific	$3,871,668	
Nevada County Narrow Gauge	19,013	$3,890,681
Sacramento—		
Amador Branch	$114,000	
California Pacific	8,889	
Central Pacific	1,407,879	
Sacramento and Placerville	193,375	1,724,143
San Benito—		
Southern Pacific	$313,525	313,525
San Bernardino—		
Southern Pacific	$4,644,616	
California Southern	65,514	4,710,130
San Diego—		
California Southern	$384,486	
Southern Pacific	2,821,728	3,206,214
San Francisco—		
Central Pacific	$84,473	
Southern Pacific	130,739	215,212

SCHEDULE H—Continued.

County and Railroad.	Amount to County.	Total.
San Joaquin—		
Central Pacific	$1,948,711	
San Pablo and Tulare	166,304	
Stockton and Copperopolis	294,062	
San Joaquin and Sierra Nevada	121,036	$2,530,113
San Luis Obispo—		
Pacific Coast Railway	$210,172	210,172
San Mateo—		
Southern Pacific	$445,863	445,863
Santa Barbara—		
Pacific Coast Railway	$129,828	129,828
Santa Clara—		
Central Pacific	$291,877	
Southern Pacific	1,053,374	
South Pacific Coast	332,671	1,677,922
Santa Cruz—		
Pajaro and Santa Cruz	$143,349	
Southern Pacific	38,192	
South Pacific Coast	142,053	323,594
Shasta—		
Central Pacific	$2,019,105	2,019,105
Sierra—		
Central Pacific	$73,828	
Nevada and California	4,500	78,328
Solano—		
California Pacific	$711,111	
Northern Railway	262,702	
Vaca Valley and Clear Lake	109,807	1,083,620
Sonoma—		
North Pacific Coast	$102,705	
San Francisco and North Pacific	1,063,189	1,165,894
Stanislaus—		
Central Pacific	$777,081	
Stockton and Copperopolis	100,023	877,104
Sutter—		
Central Pacific	$343,385	343,385
Tehama—		
Central Pacific	$1,392,083	
Northern Railway	267,972	1,660,055
Tulare—		
Central Pacific	$434,382	
Southern Pacific	1,109,862	1,544,244
Yolo—		
California Pacific	$551,111	
Northern Railway	321,597	
Vaca Valley and Clear Lake	80,193	952,901
Yuba—		
Central Pacific	$544,952	
Northern California	45,283	590,235
Total		$49,035,750

VALUATIONS FOR 1886.

SCHEDULE A.

Showing Values of Real Estate and Improvements, as reported by County Auditors, for 1886.

(See next table.)

Counties.	Value of Real Estate other than City and Town Lots.	Improvements on Same.	Value City and Town Lots.	Improvements.	Total Value Real Estate.	Total Value of Improvements.
Alameda	$13,948,156	$2,556,360	$20,706,650	$12,751,532	$34,654,806	$15,307,892
Alpine	141,604	58,890	2,378	8,582	143,982	67,472
Amador	1,877,210	609,488	159,905	454,290	2,037,115	1,063,778
Butte	10,119,685	823,725	549,410	1,060,300	10,669,095	1,884,025
Calaveras	1,465,889	426,655	66,256	229,721	1,532,145	656,376
Colusa	15,664,875	886,340	322,518	699,885	15,987,393	1,586,225
Contra Costa	8,428,257	1,648,982	398,020	502,515	8,826,277	2,151,497
Del Norte	533,585	218,423	44,090	124,825	577,675	343,248
El Dorado	1,178,045	587,390	110,100	314,510	1,288,145	901,900
Fresno	8,510,328	1,239,669	718,741	670,013	9,229,069	1,909,682
Humboldt	5,465,959	691,848	791,842	1,023,970	6,257,801	1,715,818
Inyo	331,631	232,150	23,434	92,050	355,065	324,200
Kern	2,752,040	327,525	118,271	203,980	2,870,311	531,505
Lake	1,605,716	457,235	84,257	166,625	1,689,973	623,860
Lassen	688,246	278,405	42,485	94,460	730,731	372,865
Los Angeles	14,898,693	2,741,553	9,540,873	5,116,623	24,439,566	7,858,176
Marin	5,533,560	815,230	1,162,301	941,050	6,695,861	1,756,280
Mariposa	782,132	267,594	15,110	67,980	797,242	335,574
Mendocino	4,796,046	1,049,282	232,754	536,554	5,028,800	1,585,836
Merced	7,796,300	420,035	379,723	386,188	8,176,023	806,223
Modoc	702,275	398,058	33,977	128,815	736,252	526,873
Mono	560,267	217,832	18,288	99,943	578,555	317,775
Monterey	6,144,262	756,625	776,325	542,565	6,920,587	1,299,190
Napa	5,367,389	2,024,256	786,704	1,203,164	6,154,093	3,227,420
Nevada	1,876,505	750,720	341,725	1,036,700	2,218,230	1,787,420
Placer	2,738,258	1,058,925	186,578	628,937	2,924,836	1,687,862
Plumas	891,104	408,608	35,360	165,721	926,464	574,329
Sacramento	8,862,470	1,233,700	3,687,395	5,476,580	12,549,865	6,710,280
San Benito	3,154,480	352,735	187,560	272,730	3,342,040	625,465
San Bernardino	4,005,250	1,357,325	633,120	641,085	4,638,370	1,998,410
San Diego	3,989,054	406,330	2,919,298	881,139	6,908,352	1,287,469
San Francisco	1,680,500	95,850	118,694,700	54,938,095	120,375,200	55,033,945
San Joaquin	18,679,786	1,463,302	3,389,707	3,358,337	22,069,493	4,821,639
San Luis Obispo	5,982,370	627,103	485,326	509,206	6,467,696	1,136,309

San Mateo	5,254,986	1,470,330	383,230	272,560	5,638,216	1,742,890
Santa Barbara	4,729,847	655,946	787,414	935,466	5,517,261	1,591,412
Santa Clara	18,314,474	3,811,763	6,994,222	4,026,342	25,308,696	7,838,105
Santa Cruz	3,961,905	763,225	1,015,455	870,525	4,977,360	1,633,750
Shasta	1,693,234	423,886	119,770	247,734	1,813,004	671,620
Sierra	766,250	309,930	42,880	229,965	809,130	539,895
Siskiyou	1,507,944	594,423	66,709	262,140	1,574,653	856,563
Solano	10,577,161	1,198,414	846,827	1,502,877	11,423,988	2,701,291
Sonoma	13,775,310	3,357,285	1,824,800	2,613,180	15,600,110	5,970,465
Stanislaus	10,010,424	795,832	549,732	748,410	10,560,156	1,544,242
Sutter	5,797,033	501,209	39,940	95,155	5,836,973	596,364
Tehama	5,236,909	640,356	454,405	606,955	5,691,314	1,247,311
Trinity	433,252	193,973	15,592	48,800	448,844	242,773
Tulare	6,861,735	808,645	398,402	509,376	7,260,137	1,318,021
Tuolumne	997,060	433,678	103,930	307,340	1,100,990	741,018
Ventura	2,967,357	308,051	219,298	216,528	3,186,655	524,579
Yolo	11,516,228	903,622	653,034	1,135,642	12,169,262	2,039,264
Yuba	2,540,505	401,090	395,000	791,635	2,935,505	1,192,725
Totals	$278,093,541	$45,059,806	$182,555,821	$110,749,300	$460,649,362	$155,809,106

SCHEDULE B.

Showing the Value of all Property, upon which Tax was Levied, for 1886.

Counties.	Real Estate and Improvements.	Personal Property, except Money and Solvent Credits.	Money and Solvent Credits.	Value of Preceding Columns.	Assessment of Railways by State Board of Equalization.	Total Value of all Property.
Alameda	$49,962,698	$5,682,814	$280,720	$55,926,232	$2,831,595	$58,757,827
Alpine	211,454	68,298	4,954	284,706	....	284,706
Amador	3,100,893	606,213	45,775	3,752,881	48,000	3,800,881
Butte	12,553,120	2,173,015	392,793	15,118,928	1,461,582	16,580,510
Calaveras	2,188,521	721,235	35,857	2,945,613	44,970	2,990,583
Colusa	17,573,618	3,015,400	421,661	21,010,679	1,142,770	22,153,449
Contra Costa	10,977,774	3,132,562	136,703	14,247,039	1,138,413	15,385,452
Del Norte	920,923	268,333	46,920	1,236,176	....	1,236,176
El Dorado	2,190,045	826,245	103,285	3,119,575	115,979	3,235,554
Fresno	11,138,751	2,854,545	136,822	14,130,118	2,189,501	16,319,619
Humboldt	7,973,619	1,919,087	300,430	10,193,136	....	10,193,136
Inyo	679,265	434,130	19,771	1,133,166	148,334	1,281,500
Kern	3,401,816	1,904,384	61,440	5,367,640	2,733,508	8,101,148
Lake	2,313,833	515,386	52,380	2,881,599	....	2,881,599
Lassen	1,103,596	919,060	84,386	2,107,042	9,000	2,116,042
Los Angeles	32,297,742	4,949,449	313,689	37,560,880	2,530,940	40,091,820
Marin	8,452,141	1,318,782	82,954	9,853,877	476,424	10,330,301
Mariposa	1,132,816	445,213	42,044	1,620,073	....	1,620,073
Mendocino	6,614,636	1,807,831	228,861	8,651,328	....	8,651,328
Merced	8,982,246	1,743,237	51,053	10,776,536	1,148,940	11,925,476
Modoc	1,263,125	1,083,336	115,941	2,462,402	....	2,462,402
Mono	896,330	206,023	13,768	1,116,121	66,666	1,182,787
Monterey	8,219,777	2,064,935	94,922	10,379,634	882,035	11,261,669
Napa	9,381,513	2,143,272	348,476	11,873,261	728,889	12,602,150
Nevada	4,005,650	1,027,140	154,305	5,187,095	1,041,712	6,228,807
Placer	4,612,698	1,277,345	218,771	6,108,814	3,543,991	9,652,805
Plumas	1,500,793	528,277	36,178	2,065,248	....	2,065,248
Sacramento	19,260,145	4,158,245	545,145	23,963,535	1,588,720	25,552,255
San Benito	3,967,505	1,125,795	107,490	5,200,790	313,525	5,514,315
San Bernardino	6,636,780	1,289,630	162,895	8,089,305	5,186,908	13,276,213
San Diego	8,195,821	1,624,524	140,937	9,961,282	3,486,888	13,448,170
San Francisco	175,409,145	41,434,389	13,307,475	230,151,009	207,647	230,358,656
San Joaquin	26,891,132	4,289,415	574,509	31,755,056	2,318,826	34,073,882
San Luis Obispo	7,604,005	1,943,486	245,448	9,792,939	185,446	9,978,385

San Mateo	7,381,106	1,552,191	331,850	9,265,147	445,863	9,711,010
Santa Barbara	7,108,673	1,383,628	93,184	8,585,485	114,554	8,700,039
Santa Clara	33,146,801	4,273,270	509,324	37,929,395	1,621,543	39,550,938
Santa Cruz	6,611,110	1,182,660	79,815	7,873,585	310,680	8,184,265
Shasta	3,484,624	955,522	137,796	3,587,942	1,838,303	5,426,245
Sierra	1,349,025	346,705	81,335	1,777,065	71,717	1,848,782
Siskiyou	2,431,216	1,315,937	271,534	4,018,687	....	4,018,687
Solano	14,125,279	2,510,999	163,325	16,799,603	1,129,308	17,928,911
Sonoma	21,570,575	3,570,545	465,785	25,606,905	1,073,576	26,680,481
Stanislaus	12,104,398	2,401,604	211,095	14,717,097	795,017	15,512,714
Sutter	6,433,337	1,114,048	159,223	7,706,608	312,636	8,019,244
Tehama	6,938,625	1,389,616	97,260	8,425,501	1,582,003	10,007,504
Trinity	691,617	314,869	83,433	1,089,919	....	1,089,919
Tulare	8,578,158	2,527,574	182,888	11,288,620	1,534,423	12,823,043
Tuolumne	1,842,008	604,818	54,261	2,501,087	....	2,501,087
Ventura	3,711,234	872,922	109,542	4,693,698	....	4,693,698
Yolo	14,208,526	2,131,870	598,790	16,939,186	1,008,831	17,948,017
Yuba	4,128,230	1,299,005	138,520	5,565,755	541,437	6,107,192
Totals	$516,458,468	$129,258,814	$22,678,318	$768,395,600	$48,051,100	$816,446,700

Note.—Money, $10,088,048. Solvent credits, $12,590,270.

SCHEDULE C.

Showing Rolling Stock owned by Corporations in 1886.

CORPORATIONS.	Locomotives	Sleepers	Passenger	Emigrant and Smoking	Baggage, Express, Mail.	Caboose	Box Freight	Flat Freight	Dump, Hand, and Section	Other Rolling Stock
Amador Branch										
California Pacific	12		12	4	6	1	32	112	34	
California Southern	7		7		3		31	47	40	5
Central Pacific	150	21	103	49	37	70	1,684	1,371	271	47
Northern California	2		2		1		6	13	4	
Northern Railway										
Pajaro and Santa Cruz										
Sacram'to and Placerville	3		1		1		31	34	18	
San Fran. and N. Pacific	13		26	4	3	3	64	213	60	19
San Pablo and Tulare										
Stockton and Copper'olis	3		3		1		4	38	7	
Southern Pacific	80	1	88	13	22	19	1,256	369	270	
Vacaville and Clear Lake	1		1		1		5	10	8	
Carson and Colorado	1		1			1	10	27	15	
Nevada and California	2					1	6	9	2	
Nevada Co. Narrow Gauge	3		2		2		20	25	4	
North Pacific Coast	10		20	5	5	2	30	254	24	1
Pacific Coast Railway	5		3	1	1	1	18	167	12	
S. Joaquin and S. Nevada	3		1	1	1	1	19	44	6	
South Pacific Coast	18		63		5		108	300	25	
Totals	313	22	333	77	89	99	3,324	3,030	790	72

SCHEDULE D.

Assessment of Property of Railroad Corporations assessed by Assessors—Depots, Stations, Lands, Etc.

Road.	1885.	1886.
Amador Branch	$6,375	$5,425
California Pacific	40,880	48,580
California Southern	98,266	75,954
Central Pacific	4,714,322	3,014,272
Northern California	2,100	2,200
Northern Railway	113,475	181,296
Pajaro and Santa Cruz	9,790	850
Sacramento and Placerville	8,900	8,300
San Francisco and North Pacific	194,887	27,600
San Pablo and Tulare	21,060	30,175
Stockton and Copperopolis	11,760	12,130
Southern Pacific	1,713,010	981,724
Vaca Valley and Clear Lake	3,345	5,995
Carson and Colorado	7,850	8,300
Nevada and California		1,000
Nevada County Narrow Gauge	10,670	13,300
North Pacific Coast	105,720	68,320
Pacific Coast Railway	22,512	34,607
San Joaquin and Sierra Nevada	5,950	6,150
South Pacific Coast		39,910
Atlantic and Pacific		4,750
Totals	$7,090,872	$4,570,838
Western Development		24,310
Pacific Improvement		284,315
Trustees for Central and Southern Pacific (San Francisco)		877,455
		$5,756,918

Note.—The table for 1885 is taken from the reports of the railroad companies. The table for 1886 is taken from reports of Assessors, and, of course, needs explanation. The Assessor of San Francisco lumps the valuations. Some Assessors have omitted property held in trust for the Central and Southern Pacific Companies, and the only Assessor who returns property owned by the San Francisco and North Pacific is the Assessor of Sonoma. Probably $2,000,000 should be added to the total valuation for 1886.

SCHEDULE E.

Showing Assessment of Railroads by State Board of Equalization and Apportionment to Counties in 1886.

Railroad and Counties.	Total Number of Miles.	Number of Miles in County.	Value per Mile.	Apportionment to Counties.	Total Assessment.
Amador Branch	27		$6,000 00		$162,000
Amador		8		$48,000	
Sacramento		19		114,000	
California Pacific	112.50		17,777 77		2,000,000
Napa		41		728,889	
Sacramento		.50		8,889	
Solano		40		711,111	
Yolo		31		551,111	
California Southern	210.80		6,000 00		1,264,800
San Bernardino		99.94		599,640	
San Diego		110.86		665,160	
Central Pacific	640.68		31,216 83		20,000,000
Alameda		83.52		2,607,230	
Butte		45		1,404,758	
Fresno		60.13		1,877,068	
Merced		36.75		1,147,219	
Nevada		30.25		944,309	
Placer		112.75		3,519,698	
Sacramento		41		1,279,890	
San Francisco		2.46		76,793	
San Joaquin		56.75		1,771,555	
Santa Clara		8.50		265,343	
Shasta		58.80		1,835,550	
Sierra		2.15		67,116	
Stanislaus		22.63		706,437	
Sutter		10		312,168	
Tehama		40.54		1,265,530	
Tulare		13.58		423,925	
Yuba		15.87		495,411	
Northern California	26.50		3,773 58		100,000
Butte		14.50		54,717	
Yuba		12		45,283	
Northern Railway	148.40		18,194 07		2,700,000
Alameda		6.85		124,629	
Colusa		62.81		1,142,770	
Contra Costa		23.75		432,109	
Solano		16.95		308,390	
Tehama		17.29		314,575	
Yolo		20.75		377,527	
Pajaro and Santa Cruz	26.16		5,733 94		150,000
Monterey		1.16		6,651	
Santa Cruz		25		143,349	
Sacramento and Placerville	48.50		6,185 56		300,000
El Dorado		18.75		115,979	
Sacramento		29.75		184,021	
San Francisco and N. Pacific	92.50		12,972 97		1,200,000
Marin		16.85		218,595	
Sonoma		75.65		981,405	
San Pablo and Tulare	46		19,565 21		900,000
Alameda		1.40		27,392	
Contra Costa		36.10		706,304	
San Joaquin		8.50		166,304	
Stockton and Copperopolis	44.63		7,842 25		350,000
Calaveras		.66		5,176	
San Joaquin		32.81		257,304	
Stanislaus		11.16		87,520	
Southern Pacific	957.02		17,763 47		17,000,000
Fresno		17.43		309,617	
Kern		153.47		2,726,160	
Los Angeles		142.48		2,530,940	
Monterey		49.28		875,384	
San Benito		17.65		313,525	
San Bernardino		261.47		4,644,616	
San Diego		158.85		2,821,728	
San Francisco		7.36		130,739	

SCHEDULE E—Continued.

RAILROADS AND COUNTIES.	Total Number of Miles.	Number of Miles in County.	Value per Mile.	Apportionment to Counties.	Total Assessment.
San Mateo		25.10		$445,863	
Santa Clara		59.30		1,053,374	
Santa Cruz		2.15		38,192	
Tulare		62.48		1,109,862	
Vaca Valley and Clear Lake	28.55		$6,654 99		$190,000
Solano		16.50		109,807	
Yolo		12.05		80,193	
Carson and Colorado	107.62		1,997 76		215,000
Inyo		74.25		148,334	
Mono		33.37		66,666	
Nevada and California	9		1,500 00		13,500
Lassen		6		9,000	
Sierra		3		4,500	
Nevada Co. Narrow Gauge	22.50		5,111 11		115,000
Nevada		18.78		95,987	
Placer		3.72		19,013	
North Pacific Coast	70.25		4,982 20		350,000
Marin		51.75		257,829	
Sonoma		18.50		92,171	
Pacific Coast Railway	63.90		4,694 83		300,000
San Luis Obispo		39.50		185,446	
Santa Barbara		24.40		114,554	
S. Joaquin and Sierra Nevada	39.60		4,060 60		160,800
Calaveras		9.80		39,794	
San Joaquin		29.80		121,006	
South Pacific Coast	45.30		11,037 52		500,000
Alameda		6.20		68,433	
Santa Clara		27.40		302,428	
Santa Cruz		11.70		129,139	
Atlantic and Pacific	242.51		206 17		50,000
San Bernardino		206.87		42,652	
Kern		35.64		7,348	
Pullman Palace Car Company	640.68		46 82		30,000
Alameda		83.52		3,911	
Butte		45		2,107	
Fresno		60.13		2,816	
Merced		36.75		1,721	
Nevada		30.25		1,416	
Placer		112.75		5,280	
Sacramento		41		1,920	
San Francisco		2.46		115	
San Joaquin		56.75		2,657	
Santa Clara		8.50		398	
Shasta		58.80		2,753	
Sierra		2.15		101	
Stanislaus		22.63		1,060	
Sutter		10		468	
Tehama		40.54		1,898	
Tulare		13.58		636	
Yuba		15.87		743	
Totals	2,747.41				$48,051,100

NOTE.—The Atlantic and Pacific operates the Colorado Division of the Southern Pacific Railroad, and is assessed for rolling stock.

The Pullman Palace Car Company owns one fourth part of the Pullman Palace cars used on the Central Pacific Railroad, and the assessment is apportioned according to the mileage of that road.

The number of miles is the number actually operated, and does not include the assessment of the Atlantic and Pacific and Pullman Palace Car Companies.

SCHEDULE F.

Showing the amounts of Assessments of Railways apportioned to each County, 1886.

Names of Counties and Railroads.	Am't of each Apportionment.	Total Apportionment.
Alameda—		
Central Pacific	$2,607,230	
Northern Railway	124,629	
San Pablo and Tulare	27,392	
South Pacific Coast	68,433	
Pullman Palace Car	3,911	
		$2,831,595
Amador—		
Amador Branch	$48,000	
		48,000
Butte—		
Northern California	$54,717	
Central Pacific	1,404,758	
Pullman Palace Car	2,107	
		1,461,582
Calaveras—		
Stockton and Copperopolis	$5,176	
San Joaquin and Sierra Nevada	39,794	
		44,970
Colusa—		
Northern Railway	$1,142,770	
		1,142,770
Contra Costa—		
Northern Railway	$432,109	
San Pablo and Tulare	706,304	
		1,138,413
El Dorado—		
Sacramento and Placerville	$115,979	
		115,979
Fresno—		
Central Pacific	$1,877,068	
Southern Pacific	309,617	
Pullman Palace Car	2,816	
		2,189,501
Inyo—		
Carson and Colorado	$148,334	
		148,334
Kern—		
Southern Pacific	$2,726,160	
Atlantic and Pacific	7,348	
		2,733,508
Lassen—		
Nevada and California	$9,000	
		9,000
Los Angeles—		
Southern Pacific	$2,530,940	
		2,530,940
Marin—		
San Francisco and North Pacific	$218,595	
North Pacific Coast	257,829	
		476,424
Merced—		
Central Pacific	$1,147,219	
Pullman Palace Car	1,721	
		1,148,940
Mono—		
Carson and Colorado	$66,666	
		66,666
Monterey—		
Southern Pacific	$875,384	
Pajaro and Santa Cruz	6,651	
		882,035
Napa—		
California Pacific	$728,889	
		728,889

SCHEDULE F—Continued.

NAMES OF COUNTIES AND RAILROADS.	Am't of each Apportionment.	Total Apportionment.
Nevada—		
Central Pacific	$944,309	
Nevada County Narrow Gauge	95,987	
Pullman Palace Car	1,416	$1,041,712
Placer—		
Central Pacific	$3,519,698	
Nevada County Narrow Gauge	19,013	
Pullman Palace Car	5,280	3,543,991
Sacramento—		
Amador Branch	$114,000	
California Pacific	8,889	
Central Pacific	1,279,890	
Sacramento and Placerville	184,021	
Pullman Palace Car	1,920	1,588,720
San Benito—		
Southern Pacific	$313,525	313,525
San Bernardino—		
California Southern	$599,640	
Southern Pacific	4,644,616	
Atlantic and Pacific	42,652	5,286,908
San Diego—		
California Southern	$665,160	
Southern Pacific	2,821,728	3,486,888
San Francisco—		
Central Pacific	$76,793	
Southern Pacific	130,739	
Pullman Palace Car	115	207,647
San Joaquin—		
Central Pacific	$1,771,555	
San Pablo and Tulare	166,304	
Stockton and Copperopolis	257,304	
San Joaquin and Sierra Nevada	121,006	
Pullman Palace Car	2,657	2,318,826
San Luis Obispo—		
Pacific Coast Railway	$185,446	185,446
San Mateo—		
Southern Pacific	$445,863	445,863
Santa Barbara—		
Pacific Coast Railway	$114,554	114,554
Santa Clara—		
Central Pacific	$265,343	
Southern Pacific	1,053,374	
South Pacific Coast	302,428	
Pullman Palace Car	398	1,621,543
Santa Cruz—		
Southern Pacific	$38,192	
Pajaro and Santa Cruz	143,349	
South Pacific Coast	129,139	310,680
Shasta—		
Central Pacific	$1,835,550	
Pullman Palace Car	2,753	1,838,303

SCHEDULE F—Continued.

NAMES OF COUNTIES AND RAILROADS.	Am't of each Apportionment.	Total Apportionment.
Sierra—		
Central Pacific	$67,116	
Nevada and California	4,500	
Pullman Palace Car	101	
		$71,717
Solano—		
California Pacific	$711,111	
Northern Railway	308,390	
Vaca Valley and Clear Lake	109,807	
		1,129,308
Sonoma—		
San Francisco and North Pacific	$981,405	
North Pacific Coast	92,171	
		1,073,576
Stanislaus—		
Central Pacific	$706,437	
Stockton and Copperopolis	87,520	
Pullman Palace Car	1,060	
		795,017
Sutter—		
Central Pacific	$312,168	
Pullman Palace Car	468	
		312,636
Tehama—		
Central Pacific	$1,265,530	
Northern Railway	314,575	
Pullman Palace Car	1,898	
		1,582,003
Tulare—		
Central Pacific	$423,925	
Southern Pacific	1,109,862	
Pullman Palace Car	636	
		1,534,423
Yolo—		
California Pacific	$551,111	
Northern Railway	377,527	
Vaca Valley and Clear Lake	80,193	
		1,008,831
Yuba—		
Northern California	$45,283	
Central Pacific	495,411	
Pullman Palace Car	743	
		541,437

MISCELLANEOUS.

SCHEDULE A.

Showing Acreage Assessed, Mortgages, and Value of Property Affected by Mortgages, 1885 and 1886.

Counties.	Acreage.		Value of Property affected by Mortgages, 1885.	Value of Mortgages, 1885.	Value of Property affected by Mortgages, 1886.	Value of Mortgages, 1886.
	1885.	1886.				
Alameda	434,977	428,437	$6,494,995	$4,489,712	$7,433,480	$5,034,546
Alpine	30,301	31,199	10,488	10,488	10,245	10,245
Amador	225,997	232,952	------	------	639,335	311,126
Butte	719,701	733,493	------	------	3,737,913	2,553,763
Calaveras	327,844	378,639	421,340	314,560	345,628	272,342
Colusa	1,133,448	1,138,880	4,204,316	3,363,453	4,754,355	3,565,716
Contra Costa	455,620	461,801	3,042,032	1,521,016	4,365,070	1,744,308
Del Norte	99,117	120,005	117,867	117,867	304,179	216,106
El Dorado	251,789	318,169	370,785	251,660	443,950	327,695
Fresno	1,803,331	1,854,341	3,600,599	2,186,892	3,689,234	2,333,433
Humboldt	1,140,151	1,168,395	1,750,000	1,472,279	2,078,661	1,461,626
Inyo	324,598	104,927	95,734	54,841	97,880	56,330
Kern	1,164,568	1,173,489	------	------	203,378	163,402
Lake	224,579	250,469	669,216	475,213	813,450	428,750
Lassen	200,604	202,868	318,959	245,013	319.566	246,799
Los Angeles	1,445,675	1,578,398	------	------	3,673,585	3,221,738
Marin	324,349	324,490	4,102,680	1,973,224	4,148,370	1,990,541
Mariposa	296,273	306,528	148,021	115,831	162,376	130,934
Mendocino	990,673	1,014,938	------	------	2,472,299	1,602,706
Merced	1,027,257	1,043,317	2,615,631	1,318,171	2,981,586	1,699,609
Modoc	202,721	231,170	------	------	397,575	299,958
Mono	88,361	102,100	30,880	30,880	27,993	19,605
Monterey	880,582	943,723	1,545,625	1,030,425	2,186,855	1,280,079
Napa	361,520	363,044	2,986,033	2,056,552	4,384,737	2,332,777
Nevada	288,027	297,314	657,915	424,165	622,440	456,602
Placer	360,266	429,952	1,279,389	676,026	1,414,217	866,473
Plumas	285,589	251,947	------	------	272,187	272,187
Sacramento	608,607	608,779	------	------	------	------
San Benito	347,377	435,081	1,563,280	724,435	1,384,760	767,970
San Bernardino	453,192	509,840	784,750	784,750	955,347	995,347
San Diego	1,040,625	817,931	856,821	775,694	2,248,235	1,074,068
San Francisco*	27,000	27,000	------	------	------	------
San Joaquin	870,910	874,123	10,541,720	5,772,078	10,959,514	6,240,382

San Luis Obispo	1,024,918	908,268	1,771,198	1,275,263	1,971,990	1,424,068
San Mateo	287,702	292,683	1,175,030	918,515	1,260,420	922,230
Santa Barbara	973,967	982,163	1,680,421	980,390	1,980,734	1,126,572
Santa Clara	578,177	568,806				
Santa Cruz	254,255	258,972	1,133,780	1,133,780	1,695,460	1,334,200
Shasta	396,817	408,857			647,213	439,717
Sierra	112,782	100,526	147,175	112,435	194,895	158,880
Siskiyou	206,651	*210,000				
Solano	512,553	507,891			4,365,344	2,900,441
Sonoma	785,459	786,758	6,000,000	3,931,226	7,000,000	4,413,205
Stanislaus	798,933	798,939	4,985,722	2,659,545	5,770,208	3,029,864
Sutter	376,627	374,091				
Tehama	987,574	1,004,610			1,951,485	1,227,667
Trinity	88,883	*90,000	306,000	94,174	325,000	93,165
Tulare	1,200,163	1,341,018			1,831,967	1,372,509
Tuolumne	206,902	219,873			367,100	197,594
Ventura	465,531	503,991				
Yolo	570,157	561,401	1,027,850	662,715	6,107,067	2,394,353
Yuba	304,122	306,502	5,852,332	2,340,933	1,289,320	1,028,785
Totals	28,567,832	28,983,688	$72,288,584	$44,294,201	$104,286,603	$64,043,413

* Estimated.

Note.—For 1885, the Assessors of Amador, Butte, Kern, Los Angeles, Mendocino, Modoc, Plumas, Sacramento, San Francisco, Santa Clara, Shasta, Siskiyou, Solano, Sutter, Tehama, Tuolumne, Ventura, and Yolo, failed to report the values affecting property and mortgages, and by the negligence of these officers the table has little value.

For 1886, the Assessors of Sacramento, San Francisco, Santa Clara, Siskiyou, Sutter, Ventura, and Jesse Robinson, Assessor of Oakland Township, refused to give the valuation of property affected by mortgages, but the Auditors report the mortgages as amounting to $46,683,864, making the total amount of mortgages in the State $110,727,277, or eighteen per cent of the assessment of real estate and improvements.

SCHEDULE B.

Showing the Valuations by Assessors for 1885 and 1886, and the Difference in those Years, and Percentage of Increase or Decrease.

Counties.	1885—Valuation.	1886—Valuation.	Increase of 1886 over 1885.	Percentage of Increase.	Decrease of 1886 below 1885.	Percentage of Decrease.
Alameda	$54,551,603	$55,926,232	$1,374,626	2.48		
Alpine	303,478	284,706			$18,772	6.18
Amador	3,796,363	3,752,881			43,482	1.25
Butte	15,466,321	15,118,928			347,393	2.25
Calaveras	3,056,672	2,945,613			111,059	3.63
Colusa	21,560,860	21,010,679			550,181	2.55
Contra Costa	14,691,176	14,247,039			444,137	2.25
Del Norte	1,182,205	1,236,176	53,971	4.56		
El Dorado	3,041,060	3,119,575	78,515	2.75		
Fresno	14,430,487	14,130,118			300,369	2.00
Humboldt	10,214,952	10,193,136			21,816	.25
Inyo	1,106,476	1,133,166	26,690	2.41		
Kern	5,103,017	5,367,640	264,623	5.25		
Lake	2,958,460	2,881,599			76,861	2.59
Lassen	1,966,456	2,107,042	140,586	7.15		
Los Angeles	32,813,543	37,560,880	4,747,337	14.46		
Marin	10,225,961	9,853,877			372,084	3.63
Mariposa	1,674,483	1,620,073			54,410	3.25
Mendocino	8,959,070	8,651,328			307,742	3.42
Merced	10,852,934	10,776,536			76,398	.75
Modoc	2,530,710	2,462,402			68,308	2.70
Mono	913,499	1,116,121	202,622	22.18		
Monterey	10,446,882	10,379,634			67,248	.60
Napa	11,512,508	11,873,261	360,753	3.25		
Nevada	5,259,645	5,187,095			72,550	1.50
Placer	6,742,052	6,108,814			633,238	9.39
Plumas	2,189,445	2,065,248			124,197	6.00
Sacramento	26,762,770	23,963,535			2,799,235	10.45
San Benito	5,322,005	5,200,790			121,215	2.27
San Bernardino	7,109,712	8,089,305	979,593	14.00		
San Diego	7,071,824	9,961,282	2,889,458	40.85		
San Francisco	227,609,348	230,151,009	2,541,661	1.11		
San Joaquin	35,601,290	31,755,056			3,846,234	10.80
San Luis Obispo	9,509,482	9,792,939	283,457	2.98		
San Mateo	10,007,245	9,265,147			742,098	7.50
Santa Barbara	8,378,165	8,585,485	207,320	2.50		

Santa Clara	35,174,402	37,929,395	2,754,993	7.83		
Santa Cruz	7,809,185	7,873,585	64,400	.82		
Shasta	3,744,461	3,587,942			156,519	4.18
Sierra	1,621,932	1,777,065	155,133	9.56		
Siskiyou	4,067,701	4,018,687			49,014	1.20
Solano	16,871,870	16,799,603			72,267	.42
Sonoma	24,398,134	25,606,905	1,208,771	4.95		
Stanislaus	15,669,595	14,717,697			951,898	6.07
Sutter	7,963,718	7,706,608			257,110	3.00
Tehama	7,996,008	8,425,501	429,493	5.50		
Trinity	1,107,615	1,089,919			17,696	1.59
Tulare	16,439,681	11,288,620	848,939	8.00		
Tuolumne	2,436,322	2,501,087	64,765	.50		
Ventura	4,574,208	4,693,698	119,490	2.25		
Yolo	16,768,305	16,939,186	170,881	1.00		
Yuba	5,706,150	5,565,755			140,395	2.46
Totals	$761,271,449	$768,395,600	$19,968,077		$12,843,926	

Note.—The total increase is $7,124,151—an increase of 0.93 over the assessment of 1885.

SCHEDULE C.

Showing Rate of County Taxation from 1874 to 1886, inclusive.

Counties.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.
Alameda	$0 62	$0 69	$0 82	$0 62	$0 70	$0 72	$0 76	$0 74	$0 70	$0 75	$0 64	$0 90	$0 69
Alpine	2 35	2 35	2 14	2 10	2 18	2 37	2 16	2 34	2 40	2 25	2 34	2 45	2 44
Amador	2 25	1 99	1 96	1 87	1 95	1 97	1 86	1 69	1 75	1 60	1 34	1 15	1 24
Butte	1 35	1 20	1 26	1 37	1 20	1 07	96	94	90	1 00	99	1 00	94
Calaveras	2 65	2 49	2 36	2 47	2 55	2 37	1 86	1 84	1 90	2 00	1 54	1 75	1 79
Colusa	95	99	1 06	1 02	95	87	76	74	80	95	84	80	79
Contra Costa	1 15	1 11	1 10	97	1 40	97	1 01	1 04	1 10	1 05	69	65	74
Del Norte	1 85	1 39	1 76	1 37	1 95	1 87	1 83	1 54	1 65	1 75	1 79	2 20	--------
El Dorado	1 65	1 05	1 60	1 60	1 55	1 55	1 60	1 60	1 54	1 58	1 54	1 37	1 24
Fresno	83	74	96	1 32	1 32	1 37	1 18	1 04	1 20	1 30	84	1 15	99
Humboldt	1 52	1 59	1 56	1 67	1 70	1 62	1 36	1 34	1 25	1 35	1 64	1 45	1 44
Inyo	2 35	2 39	2 26	2 37	2 45	2 37	2 86	2 84	2 65	2 75	2 79	2 70	2 44
Kern	1 76	1 65	1 67	1 56	1 55	2 12	1 51	1 84	1 40	1 15	1 19	1 20	1 19
Lake	1 53	1 49	2 11	1 92	2 06	1 92	1 77	1 52	1 54	1 30	1 33	1 43	--------
Lassen	1 60	1 89	2 01	2 12	2 05	1 92	1 84	1 89	1 92	1 75	1 74	1 65	1 64
Los Angeles	1 45	1 37	1 16	1 27	1 37	1 02	86	84	80	90	63	1 30	84
Marin	81	79	96	97	1 10	1 18	1 16	1 04	1 05	1 00	94	85	84
Mariposa	2 20	2 24	2 37	2 32	2 40	2 37	2 36	2 34	2 11	1 55	1 48	1 48	1 61
Mendocino	1 35	1 24	1 39	1 37	1 45	1 37	1 36	1 34	1 30	1 20	1 09	1 32	1 31
Merced	1 20	1 07	1 03	1 27	1 45	1 37	1 11	1 34	1 40	1 00	84	1 25	1 24
Modoc	1 35	1 39	1 51	1 57	1 45	1 17	1 61	1 34	1 40	1 50	1 32	1 45	1 24
Mono	1 60	1 49	1 51	1 51	2 20	2 27	3 36	2 34	2 40	2 30	3 44	5 95	2 44
Monterey	1 01	64	76	87	95	1 02	1 01	94	1 00	1 10	79	1 05	79
Napa	1 32	1 39	1 26	1 27	1 25	1 17	1 16	1 34	1 15	1 00	1 29	1 25	1 09
Nevada	1 15	1 09	1 16	1 27	1 35	1 27	1 11	1 04	1 15	1 60	1 94	1 95	1 74
Placer	85	69	76	87	1 05	87	76	74	1 00	1 05	89	1 39	99
Plumas	2 35	2 19	1 81	1 87	1 85	1 81	1 88	1 82	1 90	2 25	2 10	2 05	2 14
Sacramento	80	69	91	87	95	87	66	1 04	1 10	80	59	70	64
San Benito	75	54	76	87	95	95	76	1 09	1 20	1 20	1 04	90	84
San Bernardino	1 60	1 79	1 76	1 87	1 95	1 47	1 22	1 12	1 08	1 06	99	83	82
San Diego	2 00	2 00	1 75	1 75	1 75	1 82	1 82	1 09	85	1 35	1 23	1 17	1 14
San Francisco	1 45	1 00	1 39	1 20	1 69	1 37	1 57	1 15	1 20	1 20	1 12	1 04	1 01
San Joaquin	75	64	76	77	95	87	66	64	60	50	66	55	44
San Luis Obispo	1 01	89	1 01	87	1 27	1 62	1 68	1 66	1 35	1 20	1 09	95	1 04
San Mateo	1 75	1 15	1 26	1 17	1 45	1 24	1 11	1 09	1 00	1 15	1 09	1 00	94
Santa Barbara	1 03	1 07	1 11	1 22	1 10	1 62	1 01	99	1 15	1 19	82	70	1 14

Santa Clara	75	69	91	97	1 05	87	86	84	90	95	74	65	64
Santa Cruz	1 00	85	1 36	1 37	1 61	1 47	1 22	1 34	1 35	1 30	1 40	1 30	1 29
Shasta	85	1 69	1 76	1 87	1 95	1 87	1 71	1 99	2 00	2 75	1 79	1 70	1 69
Sierra	1 90	1 75	1 96	1 97	2 05	2 32	2 21	2 24	2 20	2 30	2 04	2 25	2 14
Siskiyou	1 15	1 14	1 06	1 17	1 25	1 17	86	1 14	95	1 30	1 19	1 25	1 24
Solano	1 65	1 44	1 56	1 47	1 45	1 27	1 06	1 09	1 15	1 07	79	75	84
Sonoma	93	89	91	92	99	99	1 01	97	85	95	59	75	74
Stanislaus	1 01	79	91	1 02	98	97	71	66	72	50	59	67	78
Sutter	1 30	91	1 16	1 17	1 20	1 12	83	96	1 15	1 00	54	60	54
Tehama	1 35	1 34	1 46	1 57	1 95	1 78	1 26	1 00	1 03	1 06	1 75	1 45	1 24
Trinity	2 05	2 09	2 06	2 12	2 20	2 12	2 11	2 09	2 05	2 25	2 29	2 45	2 44
Tulare	1 37	1 05	1 56	1 52	1 86	1 73	1 66	1 34	1 30	1 15	94	95	1 14
Tuolumne	1 85	1 89	1 66	2 02	2 00	2 02	1 96	1 74	1 90	1 55	1 54	1 55	1 49
Ventura	1 00	1 09	1 11	1 22	1 55	1 37	1 36	1 34	1 40	1 40	1 14	1 25	1 14
Yolo	95	99	1 04	1 02	1 03	92	86	84	82	75	69	65	74
Yuba	1 81	1 99	2 06	2 17	2 05	1 87	1 61	1 74	2 00	2 05	1 29	1 50	2 34

Note.—We endeavored to present the rates of taxation from 1850 to date, but we found the tables not trustworthy, because some of the Auditors returned the State rate with the county rate. The Auditors of Colusa, Del Norte, Kern, Los Angeles, Marin, Napa, San Francisco, Shasta, Sutter, and Trinity refused to give the information in respect to any year.

SCHEDULE.

Showing the Total Assessed Value of Property and Rates of State Taxation from 1850 to 1886.

YEAR.	Total Assessed Value of Property in California.	Value of Personal Property.	Per Cent of Personal Property of Real Estate.	State Rate of Taxation.
1850	$57,670,689 00	$13,968,797 00	24.22	.50
1851	49,231,052 00	20,935,116 00	42.52	.65
1852	64,579,375 00	24,213,395 00	37.49	.65
1853	95,335,646 00	33,674,000 00	35.32	.60
1854	111,191,630 00	39,040,428 00	35.11	.60
1855	103,887,193 00	34,858,319 00	33.56	.60
1856	115,007,440 00	40,942,699 00	35.60	.70
1857	126,059,461 00	59,149,630 00	46.92	.70
1858	125,955,877 00	54,185,728 00	43.01	.60
1859	131,060,279 00	56,580,344 00	43.17	.60
1860	148,193,540 00	68,369,383 00	46.06	.60
1861	147,811,617 00	73,350,591 00	49.62	.60
1862	160,369,071 00	74,014,666 00	46.15	.77
1863	174,104,955 00	80,496,645 00	46.23	.92
1864	179,164,730 00	78,117,375 00	43.60	1.25
1865	183,534,312 00	79,782,436 00	43.47	1.15
1866	200,368,826 00	92,490,635 00	46.15	1.13
1867	212,205,339 00	100,105,600 00	47.17	1.13
1868	237,483,175 00	105,112,083 00	44.26	1.00
1869	260,563,879 00	104,723,592 00	40.19	.97
1870	277,538,134 00	108,001,588 00	38.90	.865
1871	267,868,126 00	86,174,230 00	32.17	.865
1872	637,232,823 00	219,942,323 00	30.40	.50
1873	528,747,043 00	118,425,520 00	22.20	.50
1874	611,495,197 00	210,779,127 00	34.46	.649
1875	618,083,315 00	199,243,292 00	32.07	.605
1876	595,073,177 00	140,431,866 00	25.27	.735
1877	586,953,022 00	128,780,824 00	21.77	.63
1878	584,578,036 00	118,304,451 00	20.23	.55
1879	549,220,968 00	112,325,850 00	20.45	.625
1880	666,399,985 00	174,514,906 00	26.18	.64
1881	659,835,762 00	160,058,309 00	24.24	.655
1882	608,642,036 00	134,048,419 00	22.02	.596
1883	765,729,430 00	167,338,644 00	21.85	.497
1884	821,078,767 00	166,394,997 00	20.26	.452
1885	859,512,384 00	172,760,681 00	27.90	.544
1886	816,446,700 00	151,937,132 00	24.64	.56

The values from 1850 to 1884 inclusive, are taken from the Controller's reports, which always differ from the report of the Board. This difference is due to errors in addition by Auditors, afterwards corrected when report is made to the Controller.

STATISTICS FOR 1886.

The tables show the classes of property assessed and the valuation placed by the Assessor.

VITICULTURAL REPORT FOR 1885.

COUNTIES.	NUMBER OF ACRES OF GROWING GRAPEVINES.											
	For Table.				For Wine.				For Raisins.			
	1 Year.	2 Year.	3 Year.	4 Year and Over.	1 Year.	2 Year.	3 Year.	4 Year and Over.	1 Year.	2 Year.	3 Year.	4 Year and Over.
Alameda	10	10	25	50	784	1,219	1,594	793	30	43	....	....
Amador	50	40	....	115	....	....	....	425	....	....	....	15
Butte	....	....	3	338	....	2	....	85	12	50	21	144
Calaveras	20	240	290	330	....	....	....	150	....	....	....	30
Colusa	34	10	14	5	....	....	....	....	....	....	....	....
Contra Costa	1,000	2,200	1,000	250	3,000	....	....	....	....	....	....	....
El Dorado	12	5	2	21	105	67	30	1,156	....	....	2	41
Fresno	71	146	81	128	970	742	877	1,255	620	416	429	548
Inyo	....	....	....	....	....	....	....	40	....	....	....	....
Lake	10	15	10	22	120	250	220	40	....	....	....	....
Los Angeles	....	300	1,500	900	2,000	3,500	8,000	8,500	200	400	300	400
Mariposa	....	....	....	....	....	....	....	80	....	....	....	....
Mendocino	....	10	15	....	25	15	....	18	....	....	....	....
Merced	7	64	46	170	140	40	210	123	7	3	....	10
Napa	5	189	144	96	1,547	2,396	2,956	6,953	....	....	....	....
Nevada	6	5	4	90	1	....	19	44	1	....	7	8
Placer	122	116	116	274	158	270	136	385	15	32	45	268
Sacramento	131	340	225	608	639	2,295	220	1,394	....	126	3	198
San Benito	....	....	....	....	21	15	45	74	....	....	....	....
San Bernardino	....	....	....	....	315	220	320	1,555	385	112	175	1,023
San Diego	42	34	54	51	110	71	23	63	557	540	260	166
San Joaquin	100	110	35	273	200	160	40	250	....	....	....	....
San Luis Obispo	152	140	75	77	....	2	3	20	....	....	....	....
San Mateo	....	....	....	....	100	100	150	150	....	....	....	....
Santa Clara	740	283	450	465	1,486	1,210	826	1,364	56	25	15	43
Santa Cruz	75	52	285	115	90	69	79	278	....	....	....	....
Shasta	10	8	....	40	20	4	....	14	33	19	....	12
Solano	377	244	103	231	286	219	194	634	30	53	11	494
Sonoma	50	400	....	1,450	2,000	5,272	3,640	7,271	....	....	....	....
Stanislaus	3	10	....	20	3	....	....	60	....	....	....	....
Sutter	5	10	....	44	3	....	....	17	53	11	....	7

Tehama	144	146	30	25	1,500	1,000	1,500	110	150	10	14	
Ventura				30				100				
Yolo		70	60	25	126	240	400	1,000	10	100	200	500
Yuba	3	3		10			13	220				
Totals	3,179	5,200	4,567	6,253	15,549	19,378	21,495	34,621	2,159	1,940	1,482	3,907

Total number of acres: Table, 19,199; wine, 91,043; raisins, 9,488; = 119,730.

Note.—Agricultural and viticultural statistics will, under the present system of obtaining them, always be untrustworthy. For instance, Placer County is assessed in districts. The Assessor of District No. 2 reports 200 boxes of raisins, while in District No. 1, where, within two miles of Rocklin, the California Raisin Company cultivate nearly 200 acres of raisin grapes, the Assessor reports, as to the number of boxes of raisins in his district, "impossible to ascertain." The Assessor of Marin reports 107,000 *acres* of vines, which is, of course, untrue. He possibly means vines. The table is presented, however, as approximately correct.

VITICULTURAL REPORT FOR 1885—Continued.

COUNTIES.	AVERAGE YIELD PER ACRE, IN TONS.			Gallons of Wine made in 1884.	Boxes of Raisins made in 1884.	Pounds of Grapes sold for Market in 1884.
	Table.	Wine.	Raisins.			
Alameda	4.00	4.00		323,500		494,000
Amador	2.00	2.00	2.00	125,000		475,000
Butte	4.00			2,275	2,210	332,600
Calaveras				75,780	278	2,464,320
Colusa					10	20,000
El Dorado	3.00	3.00	2.00	103,310	590	1,942,410
Fresno	2.50	5.00	4.25	384,667	31,133	707,105
Inyo	2.50	2.50	2.50	425		5,800
Lake				11,000		4,000
Los Angeles	4.00	4.00	4.00	5,400,000	2,300	102,000
Marin				7,000		
Mariposa	2.25			12,558		
Mendocino	2.00	5.00		3,000		12,000
Merced	3.00	3.00	3.00	5,500		18,800
Napa	4.00	4.50		3,983,235		
Nevada	3.00	3.00	3.00	8,670	55	59,700
Placer	3.00	5.00		69,500	200	314,772
Sacramento	3.00	3.00	3.00	9,505	812	5,579,300
San Benito				10,000		
San Bernardino	3.00	5.00		315,000	64,325	99,000
San Diego	3.00	4.50	2.62	1,750	800	204,600
San Joaquin	3.25	3.50		38,500		552,320
San Luis Obispo	7.50			6,000		
San Mateo				7,500		
Santa Barbara				1,680		
Santa Clara	4.00	6.00	5.00	535,030	475	3,535,400
Santa Cruz	4.00	4.00		83,110		257,100
Shasta	2.00	2.00		1,200		
Solano	4.00	3.00		207,530	23,507	4,264,000
Sonoma	3.00	3.00		2,400,000		
Stanislaus	3.00	3.00		10,000		125,000
Sutter	3.33	3.75	4.33	865	2,392	330,000
Tehama	2.50	3.00				250,000
Tuolumne				29,800	800	2,295,000
Ventura				5,000		60,000
Yolo	3.00	3.00	3.00	150,000	15,000	
Yuba				30,000		180,000
Totals				14,457,890	144,887	24,684,227

NOTE.—Napa reports 30,254,000 pounds, but as Napa is a wine-producing country and grapes are sold to the winery, they are not reported as for market.

SCHEDULE

Showing kinds of Property Assessed, and the Assessed Value of each kind in the several Counties for 1886.

Counties.	State, County, or Municipal Bonds.	Jewelry and Plate. Value.	Watches.		Money on Hand or Special Deposit.
			Number.	Value.	
Alameda	$9,000	$32,490	1,271	$40,856	$76,486
Alpine		185	30	984	4,954
Butte		4,775	788	21,256	105,403
Calaveras	5,000	1,567	1,000	10,000	15,409
Colusa	13,150	3,985	763	18,011	107,618
Contra Costa		5,500	154	6,498	35,560
Del Norte	2,000	1,040	184	3,378	16,041
El Dorado		2,110	395	11,740	69,195
Fresno	2,500	5,778	1,047	20,320	63,584
Humboldt		2,330	854	18,586	132,982
Inyo	4,000	855	186	2,604	2,896
Kern		1,595		7,862	20,812
Lake		270	160	3,342	10,181
Lassen		530	217	3,268	4,805
Los Angeles	3,000	19,185	2,570	46,334	67,496
Marin		6,845	141	5,255	
Mariposa		220	245	5,290	10,275
Mendocino		1,595	582	12,077	51,317
Merced		1,735	471	11,030	11,540
Modoc		300	265	4,770	
Mono		350	84	2,220	5,413
Monterey		3,000	2,462	30,775	45,625
Napa		6,775	806	18,711	103,104
Nevada	4,900	4,450	273	12,355	92.865
Placer		4,375	676	23,620	82,394
Plumas	27,950	1,850	216	6,230	8,228
Sacramento	67,200	9,525	988	30,080	210,830
San Benito		200		2,150	16,190
San Bernardino	4,900	8,260	814	14,080	7,380
San Diego		2,978	958	15,593	19,722
San Francisco	448,975	417,625	5,999	211,343	6,187,756
San Joaquin	1,000	13,765	1,873	57,366	105,741
San Luis Obispo	41,679	2,528	649	11,199	41,679
San Mateo	142,000	5,390	231	5,775	42,920
Santa Barbara		2,860		11,130	12,830
Santa Clara	8,500	11,240	1,782	51,950	302,435
Santa Cruz		3,109	724	13,756	16,890
Shasta	98,398	2,835		9,172	39,398
Sierra	4,900	785	102	5,055	24,198
Siskiyou	2,600			12,000	110,709
Solano	1,000	4,360	930	19,530	80,350
Sonoma	223,175	10,150	1,538	30,000	223,175
Stanislaus		9,760	1,014	28,539	49,739
Sutter	5,700		411	7,896	45,968
Tehama		8,015			28,335
Trinity	3,200	1,281	168	6,720	24,325
Tulare		480	910	15,468	70,375
Tuolumne		1,920	190	7,600	33,985
Ventura	1,400	390	400	6.164	34,933
Yolo		2,155	404	1,493	148,330
Yuba			100	4,300	47,125
Totals	$1,126,727	$633,301	336,025	$925,731	$9,069,601

SCHEDULE SHOWING THE KINDS OF PROPERTY ASSESSED, ETC.—Continued.

COUNTIES.	HORSES—THOROUGHBRED.		HORSES—GRADED.		HORSES—AMERICAN.	
	Number.	Value.	Number.	Value.	Number.	Value.
Alameda	10	$2,600	58	$8,700	8,063	$402,450
Alpine			188	7,670	11	1,140
Amador	6	1,070	1,936	85,720	243	14,765
Butte	10	3,050			2,748	192,360
Calaveras	5	1,000	2,320	92,800	110	8,800
Colusa	10	6,100	5,840	277,871	1,644	157,160
Contra Costa	20	18,500	2,740	106,860	2,570	287,840
Del Norte	1	200			260	14,595
El Dorado	6	4,200			539	39,625
Fresno	10	4,150	7,463	299,976	1,389	97,990
Humboldt	6	4,200			4,235	184,400
Inyo	16	3,904	2,860	71,500	45	2,406
Kern			943	68,874	3,184	97,451
Lake					391	31,315
Lassen			5,793	167,566	916	67,340
Los Angeles	468	66,280	9,911	311,355	4,083	244,164
Marin	4	1,650	1,208	43,745	824	72,105
Mariposa			4	650	272	16,940
Mendocino	6	3,000			1,796	179,590
Merced					1,462	111,813
Modoc	25	7,995	5,864	151,583	1,753	93,781
Mono	1	400	731	23,270	176	9,895
Monterey	4	5,200	29	10,150	3,104	217,280
Napa	10	3,475			2,301	196,580
Nevada	4	775	1,169	35,660	982	63,670
Placer	14	5,105	404	14,025	1,196	91,475
Plumas	6	1,750			1,043	66,085
Sacramento	56	14,960	51	7,650	3,153	266,600
San Benito	6	3,600	50	8,780	1,961	147,070
San Bernardino	10	5,700	3,120	117,979	564	41,940
San Diego	14	1,720	3,381	113,745	541	40,212
San Francisco					12,228	795,826
San Joaquin	47	25,850			3,297	280,245
San Luis Obispo	18	7,300	5,400	236,143	697	62,550
San Mateo	13	5,800	1,772	53,160	896	71,680
Santa Barbara	27	5,210	5,734	177,490	1,178	98,324
Santa Clara	34	35,350			5,753	501,395
Santa Cruz	26	7,800			1,720	96,320
Shasta	6	1,350			1,394	79,665
Sierra	7	1,260	901	27,375	132	6,930
Siskiyou			58	11,600	1,500	75,000
Solano	26	13,650	3,155	139,148	2,715	230,775
Sonoma	67	54,500			7,740	372,400
Stanislaus	32	5,500	5,640	256,231	1,575	156,535
Sutter	29	6,700	1,877	94,585	1,181	109,232
Tehama*					4,144	214,830
Trinity			102	7,650	744	22,320
Tulare	20	6,900			1,766	138,115
Tuolumne	7	1,750	1,470	58,800	610	39,650
Ventura	5	2,600	2,386	79,230	1,160	91,460
Yolo	35	29,200			4,747	375,395
Yuba	3	2,600	10	4,700	532	55,990
Totals	1,130	$364,904	82,568	$3,172,241	107,268	$7,333,472

---

* Assessor returns horses under one head.

SCHEDULE SHOWING KINDS OF PROPERTY ASSESSED, ETC.—Continued.

COUNTIES.	HORSES—SPANISH.		COLTS.	
	Number.	Value.	Number.	Value.
Alameda	64	$1,705	1,609	$47,790
Alpine			55	1,040
Amador			605	14,650
Butte	3,577	125,195	1,710	46,170
Calaveras			600	9,000
Colusa			1,912	54,378
Contra Costa	540	13,770	2,650	68,900
Del Norte	229	6,465	67	1,605
El Dorado	1,943	70,855	655	15,405
Fresno			2,742	61,080
Humboldt			1,152	23,040
Inyo			450	4,500
Kern			1,387	45,610
Lake	1,460	61,715	630	15,890
Lassen			1,741	22,939
Los Angeles			3,352	60,725
Marin			543	20,865
Mariposa	1,473	41,532	646	11,530
Mendocino	1,432	67,280	1,229	24,595
Merced	3,334	148,640	1,672	55,556
Modoc			1,591	27,247
Mono			290	3,940
Monterey	5,217	193,055	2,135	51,245
Napa	1,854	70,575	1,011	30,845
Nevada			445	10,930
Placer	1,144	39,860	869	24,378
Plumas	680	15,630	436	9,840
Sacramento	4,599	181,865	2,612	70,290
San Benito	1,410	48,515	1,610	56,280
San Bernardino			844	16,745
San Diego	1,799	44,741	1,337	20,070
San Francisco				
San Joaquin	8,788	395,460	3,435	103,050
San Luis Obispo			2,706	72,146
San Mateo			775	15,500
Santa Barbara			1,135	28,435
Santa Clara	3,727	152,600	2,960	101,625
Santa Cruz	3,107	99,424	1,120	21,280
Shasta	2,500	77,259	1,183	22,277
Sierra			303	4,855
Siskiyou	4,625	115,620	550	5,500
Solano			2,312	84,388
Sonoma			1,520	38,000
Stanislaus			2,372	68,003
Sutter	439	13,007	684	48,600
Tehama			1,211	21,465
Trinity			96	1,920
Tulare	10,461	381,250	4,926	100,913
Tuolumne			498	8,964
Ventura			1,377	36,985
Yolo			667	61,360
Yuba	2,634	121,165	999	25,825
Totals	67,036	$2,487,183	67,416	$1,798,169

SCHEDULE SHOWING KINDS OF PROPERTY ASSESSED, ETC.—Continued.

COUNTIES.	CATTLE—BEEF.		CATTLE—STOCK.		CALVES.	
	Number.	Value.	Number.	Value.	Number.	Value.
Alameda	164	$2,020	4,474	$64,725	3,786	$33,430
Alpine	23	690	412	6,592	303	2,414
Amador	56	1,560	7,686	86,595		
Butte	54	1,350	7,803	117,045	3,437	24,059
Calaveras			4,820	72,300	2,560	20,480
Colusa			3,089	58,366	1,773	15,234
Contra Costa	105	3,675	3,125	62,500	2,640	21,120
Del Norte	4	70	1,261	18,381	1,118	6,703
El Dorado	13	330	3,299	63,555	3,451	34,155
Fresno	308	6,810	39,328	640,932	4,751	28,874
Humboldt	1,412	35,300	12,306	184,590	7,074	35,370
Inyo			7,310	102,340	1,721	13,668
Kern	734	16,025	45,340	680,100	7,328	31,825
Lake			2,209	31,615	2,013	12,785
Lassen	674	15,569	13,200	242,709	7,065	69,084
Los Angeles	262	5,240	12,056	189,878	5,181	33,850
Marin			4,221	64,645	4,257	34,576
Mariposa	93	2,360	4,925	78,800	1,512	7.560
Mendocino			8,998	134,986	2,607	13,036
Merced	177	4,425	14,882	223,230	2,763	24,646
Modoc	194	4,130	17,628	253,389	7,703	60,020
Mono	189	5,640	994	14,295	743	5,944
Monterey			14,346	229,545	6,582	42,790
Napa	123	3,635	3,315	60,560	2,238	19,427
Nevada			2,679	38,580	1,859	13,510
Placer	173	3,915	2,070	31,805	1,770	11,846
Plumas	243	7,290	1,530	22,500	1,133	11,330
Sacramento	166	3,500	5,915	82,020	5,168	40,730
San Benito			13,625	231,630		
San Bernardino	537	13,450	6,890	117,290	1,863	9,694
San Diego	41	915	20,814	270,930	1,734	9,731
San Joaquin	124	4,960	11,198	201,564	4,179	39,700
San Luis Obispo	1,751	31,727	33,505	441,259	7,976	24,658
San Mateo	157	3,140	3,290	58,800	3,355	24,885
Santa Barbara	360	7,200	14,141	210,045	1,842	10,462
Santa Clara	94	2,765	12,534	248,800	5,769	54,300
Santa Cruz	420	8,400			6,712	40,272
Shasta	58	1,540	6,950	108,172	2,927	27,347
Sierra	177	4,740	1,866	25,200	650	3,250
Siskiyou	400	8,000	15,440	231,600	3,150	25,200
Solano	323	8,690	3,020	46,055	5,100	51,000
Sonoma	300	7,500	2,500	37,500	1,500	12,000
Stanislaus	194	3,279	6,855	106,492	3,194	21,861
Sutter	8	185	2,941	40,214	1,799	14,779
Tehama			3,554	61,949	1,357	11,746
Trinity	31	930	3,360	50,400	169	845
Tulare	663	15,605	19,376	291,130	4,600	40,635
Tuolumne	58	1,160	3,150	47,250	870	4,350
Ventura			4,150	69,749	2,327	18,273
Yolo	182	6,685	3,244	63.125	3,038	32,212
Yuba	100	2,950	2,981	49,275	2,637	18,450
Totals	11,145	$257,355	446,601	$6,865,007	159,483	$1,163,216

SCHEDULE SHOWING KINDS OF PROPERTY ASSESSED, ETC.—Continued.

COUNTIES.	COWS—THOROUGHBRED.		COWS—AMERICAN.		COWS—GRADED.	
	Number.	Value.	Number.	Value.	Number.	Value.
Alameda	68	$4,520	6,710	$166,685		
Alpine					221	$6,568
Amador			2,440	54,310		
Butte	30	1,770	3,522	88,050		
Calaveras					2,000	40,000
Colusa	14	1,300	2,769	86,663		
Contra Costa	65	6,175	4,900	122,500	250	75,000
Del Norte	3	100	2,876	58,745		
El Dorado	13	660	3,987	99,850		
Fresno	20	1,350	3,242	91,135		
Humboldt	25	1,500			9,393	187,860
Inyo					625	15,625
Kern						47,595
Lake			1,905	44,285		
Lassen	11	440	1,728	42,007		
Los Angeles	223	14,880	8,719	241,645	684	10,945
Marin	111	4,600	22,610	565,640		
Mariposa	3	200	611	15,835	7	240
Mendocino	24	1,200	4,183	104,582		
Merced			1,889	47,225		
Modoc			2,312	51,867		
Mono			634	12,695		
Monterey	5	250			7,453	186,325
Napa	79	5,325	4,065	114,938		
Nevada	11	1,250	2,293	60,790		
Placer			1	40	2,620	58,649
Plumas	5	300	2,874	71,850		
Sacramento	90	4,640	7,810	163,635		
San Benito			3,231	80,795		
San Bernardino	58	5,825			2,325	65,375
San Diego	48	1,255	133	4,960	1,829	49,960
San Francisco			7,050	171,717		
Jan Joaquin	81	8,100	4,453	133,590	32	1,600
San Luis Obispo	15	900			15,213	342,571
San Mateo	103	4,120	9,320	186,400		
Santa Barbara	115	6,020			5,190	123,432
Santa Clara	195	19,430	8,614	250,295		
Santa Cruz	15	1,500	62	2,976		
Shasta			2,417	59,405		
Sierra					925	20,045
Siskiyou	10	750			2,050	51,250
Solano	65	3,900	4,880	129,020		
Sonoma	75	7,500	18,310	457,500		
Stanislaus	10	710	2,357	73,788		
Sutter			1,896	57,264	15	415
Tehama			1,878	57,490		
Trinity	6	300	820	20,500		
Tulare	51	3,875				
Tuolumne					2,655	66,375
Ventura	35	2,625	1,746	37,465		
Yolo			4,700	139,570		
Yuba	24	2,400	3,023	76,825		
Totals	1,706	$119,170	166,970	$4,244,532	53,487	$1,282,330

Schedule Showing Kinds of Property Assessed, Etc.—Continued.

Counties.	Cows—Spanish.		Oxen.		Hogs.	
	Number.	Value.	Number.	Value.	Number.	Value.
Alameda					937	$9,005
Alpine			8	$400	146	338
Amador			26	525	5,156	11,207
Butte			80	3,610	15,243	30,486
Calaveras			16	640	1,305	2,610
Colusa			30	1,240	29,210	71,429
Contra Costa					3,050	9,150
Del Norte			74	2,265	1,028	2,056
El Dorado			58	1,850	2,182	7,735
Fresno			54	2,270	28,139	49,067
Humboldt			221	11,050	8,230	16,460
Inyo			36	1,081	2,270	4,540
Kern						24,856
Lake					5,716	9,407
Lassen			61	1,650	2,759	5,833
Los Angeles			28	5,500		29,413
Marin			35	1,810	6,210	14,495
Mariposa			26	1,300	5,760	9,364
Mendocino			302	15,100	14,193	14,193
Merced					8,852	19,917
Modoc			110	2,815	5,486	7,915
Mono			14	450	486	1,067
Monterey					2,945	5,595
Napa					6,310	13,820
Nevada			31	775	1,304	5,545
Placer			155	5,490	4,388	10,371
Plumas			42	1,730	1,436	6,244
Sacramento			36	900	10,216	19,750
San Benito					3,690	5,945
San Bernardino			72	1,975	2,706	6,262
San Diego			40	504	6,586	14,477
San Francisco					5,066	14,595
San Joaquin					1,392	34,800
San Luis Obispo			2	60	9,565	17,348
San Mateo			46	1,380	1,870	3,740
Santa Barbara					2,960	8,756
Santa Clara			21	755	7,093	24,781
Santa Cruz	5,629	$112,580	160	7,000	7,020	19,305
Shasta			49	1,315	11,089	22,370
Sierra			185	5,010	263	1,322
Siskiyou			42	4,300	5,600	8,400
Solano					11,850	23,700
Sonoma			120	6,000	16,927	21,000
Stanislaus						18,904
Sutter					14,706	22,522
Tehama					7,798	37,060
Trinity			32	1,472	1,230	4,920
Tulare	5,210	143,005	76	2,240	60,937	104,110
Tuolumne			75	2,250	2,540	7,620
Ventura					11,560	21,126
Yolo					18,351	38,605
Yuba			238	8,090	8,123	16,260
Totals	10,839	$255,585	2,611	$104,602	392,879	$909,788

SCHEDULE SHOWING KINDS OF PROPERTY ASSESSED, ETC.—Continued.

COUNTIES.	MULES.		JACKS AND JENNIES.		LAMBS.	
	Number.	Total Value.	Number.	Value.	Number.	Value.
Alameda	202	$11,505			50	$35
Alpine	23	1,020			150	75
Amador	144	7,040				
Butte	1,936	193,600	35	$6,300	4,800	1,200
Calaveras	75	3,750	120	1,200	4,000	1,000
Colusa	4,067	367,380	44	9,307	3,598	2,391
Contra Costa	330	16,830				
Del Norte	60	2,365	2	30		
El Dorado	46	2,580	15	175	10	10
Fresno	1,085	63,275	65	4,877	121,612	60,946
Humboldt	796	31,840	17	2,975	8,444	2,111
Inyo	306	11,017	16	756		
Kern	646	36,190	252	6,851		
Lake	130	7,665	3	1,000		
Lassen	160	6,970	11	1,605		
Los Angeles	1,134	50,147	32	3,050	8,324	4,620
Marin	33	1,690			369	369
Mariposa	254	7,320	116	1,490	19,466	9,733
Mendocino	189	9,456	5	1,800	11,668	5,834
Merced	1,845	146,031	43	4,795	46,310	23,155
Modoc	567	29,230	20	5,000		
Mono	50	1,600	5	430		
Monterey	47	3,295				
Napa	416	38,040	8	2,300	7,387	4,120
Nevada	70	3,145			152	80
Placer	180	9,810	3	430	7,592	1,965
Plumas	56	2,740				
Sacramento	425	25,440	4	1,350	1,975	1,060
San Benito	32	1,940	5	600		
San Bernardino	268	12,200	18	695	250	125
San Diego	295	10,758	16	525	9,750	2,500
San Francisco	323	12,460				
San Joaquin	2,021	211,470	68	16,936	7,808	1,952
San Luis Obispo	248	10,620	3	275	4,759	2,489
San Mateo	82	4,100	3	225	37	30
Santa Barbara	509	17,205	1	200		
Santa Clara	124	9,290	6	950	58	65
Santa Cruz	184	12,880	67	536		
Shasta	328	16,650	18	1,945		
Sierra	88	4,355	11	240		
Siskiyou	670	30,150	32	6,400		
Solano	1,630	135,590	5	907	10,000	6,000
Sonoma	420	25,200	31	700	13,200	6,500
Stanislaus	3,799	318,432	134	17,996	18,083	9,042
Sutter	1,060	92,555	5	1,950	1,166	291
Tehama	1,196	90,010	14	4,025	12,316	6,108
Trinity	260	7,800	5	400	900	900
Tulare	1,088	61,832	61	6,641	7,279	3,725
Tuolumne	92	4,600	70	2,100	970	485
Ventura	231	8,740	3	320	9,940	6,198
Yolo	1,879	175,470	32	11,450		
Yuba	249	14,940	12	840		
Totals	33,328	$2,390,018	1,431	$132,777	342,523	$166,211

SCHEDULE SHOWING KINDS OF PROPERTY ASSESSED, ETC.—Continued.

COUNTIES.	SHEEP—IMPORTED OR FINE.		SHEEP—GRADED.		SHEEP—COMMON.	
	Number.	Value.	Number.	Value.	Number.	Value.
Alameda	250	$1,240	390	$560	10,387	$10,370
Alpine					300	300
Amador					6,283	9,366
Butte	3	45	858	1,287	59,519	74,398
Calaveras					36,400	36,400
Colusa			865	2,627	93,464	143,086
Contra Costa					5,075	8,625
Del Norte					1,831	2,742
El Dorado					11,471	16,455
Fresno			36,246	66,743	328,751	443,418
Humboldt	65	650	722	2,166	177,107	177,107
Inyo	56	448			3,580	4,475
Kern	1,423	7,200	315,567	474,850	63,320	31,660
Lake					3,395	50,856
Lassen					23,922	25,489
Los Angeles	1,107	5,595	173,371	260,056		
Marin					385	548
Mariposa	41	205	700	1,400	44,990	56,240
Mendocino			1,000	5,000	215,018	322,528
Merced			801	2,697	135,160	202,740
Modoc			25,000	37,500		
Mono					848	848
Monterey					14,360	21,540
Napa			117	240	31,665	47.504
Nevada					3,600	6,340
Placer	45	450			53,527	66,926
Plumas					865	1,297
Sacramento	10	300	36,925	55,245		
San Benito					15.243	22,865
San Bernardino			29,333	57,320	11,239	18,450
San Diego			25,270	39,879	30,764	45,044
San Francisco					1,701	5.250
San Joaquin	379	1,895			29,576	44.364
San Luis Obispo	148	740	20,286	30.256	1,002	1,202
San Mateo					1,320	1,320
Santa Barbara			89,694	89,694		
Santa Clara	5	165			2,463	3,890
Santa Cruz					672	1,344
Shasta					16,358	24,504
Sierra			453	485		53,606
Siskiyou					56,280	84.420
Solano	45	675			61,960	92,940
Sonoma	620	600	2,100	10,500	185,000	280,000
Stanislaus	7,401	19,552	1,460	2,025	49,623	62,028
Sutter			78	196	38,997	52,526
Tehama					170,851	244,414
Trinity					30,437	45.655
Tulare					168,767	253,602
Tuolumne					3,200	4,800
Ventura	490	1,700			52,899	79,335
Yolo					46,316	70,835
Yuba					52,525	65.655
Totals	12,083	$47,695	761,236	$1,140,726	2,352,416	$3,319,307

Schedule Showing Kinds of Property Assessed, Etc.—Continued.

Counties.	Goats—Common.		Goats—Angora.		Poultry.	
	Number.	Value.	Number.	Value.	Number of Dozen.	Value.
Alameda	4	$18			2,813	$14,080
Alpine					81	486
Amador	2,741	2,565			45	135
Butte	1,475	1,863	120	$180	2,039	6,117
Calaveras	1,660	1,245	200	300	1,421	5,684
Colusa	2,460	3,691	313	883	2,810	10,668
Contra Costa					3,130	15,650
Del Norte	26	26			328	1,091
El Dorado	8,300	8,300	4,180	5,545	1,309	6,585
Fresno	1,369	1,047			5,053	15,258
Humboldt	453	453	28	28	2,645	5,290
Inyo	2,350	2,350			496	2,480
Kern						2,086
Lake	1,631	1,227			1,167	2,922
Lassen	1,920	1,920			590	1,546
Los Angeles	1,270	1,270				26,284
Marin					378	1,494
Mariposa	2,713	1,376	3,915	4,876	924	2,714
Mendocino	1,446	1,446			1,021	3,065
Merced	282	354			2,332	6,996
Modoc	700	700			1,200	3,600
Mono	221	221			217	1,085
Monterey	795	1,195			5,321	15,965
Napa	360	540	502	1,212		14,120
Nevada	1,110	960			638	3,190
Placer	3,259	3,270			1,731	7,623
Plumas	22	30			720	3,600
Sacramento	971	1,220	25	375	4,273	14,050
San Benito	825	790			1,880	4,700
San Bernardino	627	632			1,743	5,242
San Diego	1,715	1,474	61	79	1,696	5,088
San Francisco	48	105			648	7,281
San Joaquin	110	110			5,862	17,586
San Luis Obispo	799	1,012			2,765	8,363
San Mateo	89	90			860	2,580
Santa Barbara					2,068	4,136
Santa Clara	125	160			5,700	28,525
Santa Cruz	46	69			3,630	9,075
Shasta	3,978	4,958			1,728	5,068
Sierra	784	1,025				
Siskiyou	1,770	2,655			750	3,000
Solano					3,040	12,160
Sonoma	400	400			4,220	20,000
Stanislaus	132	132			2,817	8,519
Sutter	12	19			2,671	7,342
Tehama					826	3,648
Trinity					303	1,515
Tulare	1,855	1,934			2,593	7,342
Tuolumne	1,085	1,085			725	3,625
Ventura	448	448			1,466	4,398
Yolo					2,449	7,420
Yuba	250	250			226	790
Totals	52,636	$49,535	9,344	$13,478	93,148	$371,267

SCHEDULE SHOWING KINDS OF PROPERTY ASSESSED, ETC.—Continued.

COUNTIES.	WHEAT.		OATS.		BARLEY.	
	Number of Centals.	Value.	Number of Centals.	Value.	Number of Centals.	Value.
Alameda	*7,175	$36,985	400	$300	16,535	$15,300
Alpine	1,270	1,584	----------	----------	----------	----------
Amador	2,500	2,500	----------	----------	200	200
Butte	800,000	600,000	----------	----------	39,300	49,125
Calaveras	900	1,800	----------	----------	500	500
Colusa	816,340	687,800	----------	----------	19,620	15,846
Contra Costa	550,000	550,000	----------	----------	10,000	7,000
Del Norte	----------	----------	140	145	----------	----------
El Dorado	2,400	3,750	----------	----------	----------	----------
Fresno	10,649	9.760	740	590	2,240	2,065
Humboldt	----------	----------	13,840	6,920	----------	----------
Inyo	4,380	6,570	3,150	3,937	3,380	4,225
Lake	----------	2,990	----------	----------	1,860	1,392
Lassen	14,340	10,710	820	615	----------	----------
Los Angeles	18,800	14,100	2,667	2,000	18,500	9,250
Marin	----------	----------	----------	----------	620	600
Mariposa	----------	----------	----------	----------	870	1,305
Mendocino	1,370	1,370	----------	----------	----------	----------
Merced	139,080	104,310	----------	----------	10.520	7.890
Modoc	8,000	6.750	----------	----------	9,800	5,880
Mono	12	115	40	60	540	735
Monterey	27,895	19,525	----------	----------	31,640	15,820
Napa	†5,620	5,663	----------	----------	----------	----------
Placer	6,930	5,544	----------	----------	2,620	1,515
Plumas	‡5,840	5,840	----------	----------	445	445
Sacramento	48,500	36,375	----------	----------	6,200	4,650
San Benito	156,720	141,048	----------	----------	1,120	10,080
San Bernardino	----------	----------	----------	----------	3,915	2,884
San Francisco	† ----------	465,165	----------	----------	----------	----------
San Joaquin	505,120	404,096	60	480	1,336	10,688
San Luis Obispo	†8,740	12,348	----------	----------	----------	----------
San Mateo	4,330	4,330	2,190	1,905	1,710	1,500
Santa Barbara	† ----------	8,458	----------	----------	----------	----------
Santa Clara	11,420	11,420	40	40	8,795	8,795
Santa Cruz	2,600	1,950	1,970	1,327	12,920	6,460
Shasta	4,182	5,081	----------	----------	3,216	3,327
Sierra	----------	----------	200	200	900	1,240
Solano	92,000	82,800	----------	----------	58,200	37,830
Sonoma	†24,000	24,000	----------	----------	----------	----------
Stanislaus	250,740	190.562	760	560	4,100	3,123
Sutter	282,940	198,876	----------	----------	2,060	1,592
Tehama	†55,200	55,300	----------	----------	----------	----------
Trinity	----------	----------	----------	----------	102	510
Tulare	155,880	85,223	----------	----------	3,560	1,786
Tuolumne	1,590	2,385	----------	----------	1,000	1,250
Ventura	11,120	8,835	----------	----------	8,760	4,755
Yolo	314,400	267,395	----------	----------	5,640	5,640
Yuba	43,360	36,755	----------	----------	8,340	8,340
Totals	4,296,343	$4,120,668	27,017	$19,079	301,104	$246,543

---

* Failed to return number of centals from three districts.

† Assessor returns all cereals in one total.

‡ Returns wheat and oats in one total.

SCHEDULE SHOWING KINDS OF PROPERTY ASSESSED, ETC.—Continued.

COUNTIES.	CORN.		BRANDIES AND OTHER LIQUORS.		WINES.	
	Number of Centals.	Value.	Gallons.	Value.	Number of Gallons.	Value.
Alameda	1,100	$1,100	17,400	$18,520	177,000	$25,200
Alpine						
Amador					3,800	760
Butte	65	130	1,540	2,695	3,400	850
Calaveras			4,200	8,400	15,000	3,000
Colusa			3,894	11,684		
Contra Costa					30,000	6,000
Del Norte			1,651	3,823	295	397
El Dorado			2,500	2,615	23,680	2,925
Fresno	361	375		3,264	61,620	10,139
Humboldt			3,926	11,778		
Inyo	2,356	2,945	920	2,070	400	200
Kern				4,224		
Lake	100	75	2,735	2,735	3,000	450
Lassen			144	432		
Los Angeles	26,410	13,205		6,265	747,150	74,715
Marin						
Mariposa			84	126	1,580	436
Mendocino			5,173	10,346	2,000	1,000
Merced	3,520	2,140				
Modoc			1,000	2,000	200	400
Mono			1,371	2,860		878
Monterey				9,765		
Napa			39,711	21,146	1,966,252	334,262
Nevada				11,025	5,200	1,245
Placer			915	915	11,320	1,904
Plumas						
Sacramento	3,490	2,270	6,050	3,630	20,670	1,445
San Benito						
San Bernardino			2,435	5,089	33,129	7,125
San Diego				742	5,070	1,905
San Francisco				791,987		268,170
San Joaquin			2,974	2,974	45,966	6,895
San Luis Obispo			2,436	3,459	535	422
San Mateo				6,000		
Santa Barbara						600
Santa Clara	550	550	75,025	115,440	144,335	24,022
Santa Cruz	11,610	5.805	7,200	11,520	3,240	405
Shasta			1,912	4,215		
Sierra						
Siskiyou				2,000		400
Solano			4,000	3,600	70,400	8,448
Sonoma			35,000	30,000	1,320,000	198,000
Stanislaus	1,320	670	8,956	2,357		3,457
Sutter			305	670		
Tehama				17,775		
Trinity			609	1,218		
Tulare	860	396	1,537	2,030	7,107	2,347
Tuolumne	17,900	9,845	502	753	29,230	4,384
Ventura	8,640	4,460	7,871	15,742		
Yolo					21,200	5,300
Yuba	800	600	4,297	9,085	5,120	2,050
Totals	79,082	$44,566	248,273	$1,167,974	4,757,899	$1,000,136

Schedule Showing Kinds of Property Assessed, Etc.—Continued.

Counties.	Beehives.		Hay.		Hops.	
	Number.	Value.	Number of Tons.	Value.	Number of Pounds.	Value.
Alameda	5	$15 00	932	$5,010		
Alpine	23	46 00	86	723		
Amador			246	1,490		
Butte	397	397 00	678	5,085		
Calaveras	400	400 00				
Colusa	210	367 50	410	2,969		
Contra Costa	1,000	1,750 00	2,200	13,200		
Del Norte	116	116 00	18	205		
El Dorado	90	99 90	37	555		
Fresno	1,651	3,930 00	1,490	6,360	30	$1,500
Humboldt	36	72 00	146	1,460		
Inyo	1,145	2,004 00	708	1,593	150	30
Kern	828	1,656 00		3,785		
Lake	2,735	2,735 00	110	1,100		
Lassen	4	8 00	2,698	6,645		
Los Angeles		12,740 00	650	3,250		155
Marin			55	480		
Mariposa	12	12 00	219	3,445		
Mendocino	100	161 00	322	3,220		
Merced	94	94 00	1,004	4,317		
Modoc	150	750 00	4,652	10,467		
Mono	257	514 00	1,520	3,722		
Monterey	525	525 00	163	815		
Napa	39,711	21,146 00	224	1,520	16,480	412
Nevada	129	245 00	61	620		
Placer	250	329 00	74	732		
Plumas	108	270 00	2,748	8,456		
Sacramento	100	150 00	186	1,825		1,700
San Benito	80	80 00	1,950	11,700		
San Bernardino	6,210	6,210 00	131	1,224	500	50
San Diego	23,529	32,293 00	21	157		
San Francisco			1,800	18,945		9,410
San Joaquin	545	545 00	1,091	5,455	4,280	1,284
San Luis Obispo	405	544 00	616	2,424		
San Mateo	80	120 00	1,348	6,740		
Santa Barbara	4,860	4,860 00				
Santa Clara	174	195 00	2,160	16,681	7,000	510
Santa Cruz			3,160	20,540	94,000	940
Shasta	377	377 00	289	2,994		
Sierra			1,422	2,170		
Siskiyou	1,150	1,725 00		4,000		
Solano			825	5,775		
Sonoma	100	100 00	300	3,000	100,000	5,000
Stanislaus	214	263 00	219	1,757		
Sutter	315	210 00	268	1,675		
Tehama	127	254 00	49	590		
Trinity			5	100		
Tulare	2,782	4,649 00	860	2,650		
Tuolumne	430	430 00	210	2,520		
Ventura	7,871	15,742 00	145	885		
Yolo			245	1,500		
Yuba			100	915		
Totals	99,325	$119.129 40	38,851	$207,446	222,410	$20,991

Schedule Showing Kinds of Property Assessed, Etc.—Continued.

Counties.	Wood.		Lumber.		Coal.	
	Number of Cords.	Value.	Number of Feet.	Value.	Number of Tons.	Value.
Alameda	730	$4,675	*3,640,000	$97,800	18,182	$109,205
Alpine	9,579	17,635				
Amador	1,200	3,560	255,000	3,435		
Butte	7,312	12,791	9,184,000	91,840	180	1,800
Calaveras	1,800	3,600	750,000	6,000		
Colusa	7,611	18,659	443,000	6,940		
Contra Costa	1,000	3,500	1,122,000	13,464		
Del Norte	50	162	3,025,000	18,150		
El Dorado	6,190	9,885	162,000	2,400		
Fresno	105	285	4,730,500	53,285	59	400
Humboldt	962	2,886	6,116,000	36,696	1,000	5,000
Inyo	60	360	9,610	288		
Kern				5,660		
Lake	50	50	441,000	4,490		
Lassen	1,200	1,285	1,082,000	8,200		
Los Angeles		1,665		162,650		33,445
Marin	597	1,720	1,740,000	26,100		
Mariposa	556	1,044	542,000	4,394		
Mendocino	6,373	6,373	9,000,000	56,577		
Merced	737	1,340	329,000	4,935		
Modoc			400,000	26,000		
Mono		3,360	141,000	2,820		
Monterey			1,275,500	12,755		
Napa	3,750	7,500	624,000	7,587	81	892
Nevada	15,895	14,615	4,175,000	29,265		
Placer	31,768	67,750	5,409,000	38,080		
Plumas				5,230		
Sacramento		3,800				
San Benito	640	2,600	442,000	6,640		
San Bernardino	230	460		17,400	8	100
San Diego	103	578	861,200	26,195	600	4,200
San Francisco		24,510		409,190		373,230
San Joaquin	2,935	5,839		137,695	569	6,828
San Luis Obispo	635	1,616	1,655,000	31,900	15	120
San Mateo	560	560		7,300		
Santa Barbara		1,060	498,100	17,430		
Santa Clara	6,364	25,480	3,418,000	52,530	367½	2,825
Santa Cruz	21,204	21,204	800,000	25,200		
Shasta	1,326	2,520	611,000	6,116		
Sierra				8,440		
Siskiyou	800	1,200	320,000	2,560		
Solano	200	600	5,810,000	58,100		
Sonoma	6,300	12,600	1,200,000	12,000		
Stanislaus	2,078	5,299	751,000	10,514		
Sutter	2,119	2,933	20,000	270		
Tehama	240	900	3,678,000	30,640		
Trinity	50	150		1,329		
Tulare	5,060	7,787	1,326,000	20,981		
Tuolumne			1,700,000	11,900		
Ventura	269	619	1,300,000	19,500		
Yolo	2,490	5,220				
Yuba	1,984	3,185	790,000	13,325	70	650
Totals	153,112	$235,420	79,695,910	$1,666,214	21,131½	$538,695

---

* Full number of feet not returned.

SCHEDULE SHOWING KINDS OF PROPERTY ASSESSED, ETC.—Continued.

COUNTIES.	Farming Utensils. Value.	FIREARMS.		Fixtures of Saloons, Stores, and other business places.	Goods, Wares, and Merchandise. Value.	Harness, Robes, Saddles, etc. Value.
		Number.	Value.			
Alameda	$47,130		$4,785	$45,330	$714,040	$32,130
Alpine	1,744	30	280	1,198	2,105	1,129
Amador	6,740			8,425	176,000	
Butte	41,118		9,620	32,705	369,799	29,940
Calaveras	9,000	706	4,942	8,165	163,210	12,680
Colusa	63,432		17,981	20,140	310,936	51,570
Contra Costa	89,540		1,000	35,450	625,000	25,340
Del Norte	1,398	140	1,637	7,795	46,237	3,217
El Dorado	16,950	345	4,180	12 100	145,265	9,950
Fresno	45,211		10,558	23,392	262,312	37,567
Humboldt	14,741	574	5,740	34,923	399,232	22,449
Inyo	6,798	125	812	4,175	86,926	8,477
Kern	15,804		3,782	12,384	131,653	12,605
Lake	8,662	310	4,961	4,105	65,325	8,919
Lassen	7,170	183	2,205	2,552	52,696	12,892
Los Angeles	64,282		9,468	86,040	1,461,430	66,568
Marin	4,945		450	5,425	109,665	3,895
Mariposa	6,724	411	3,969	5,290	55,617	8,431
Mendocino	15,264	422	4,223	13,425	234,594	12,429
Merced	26,557	344	4,618	6,210	142,045	29,414
Modoc	9,540		4,518	6,520	127,480	15,270
Mono	3,360		690	5,135	38,410	3,048
Monterey	121,730	1,411	9,280	13,290	205,340	51,355
Napa	26,578	544	7,043	28,085	333,880	27,005
Nevada	3,940		1,210	21,815	295,180	9,415
Placer	14,032	221	6,281	16,830	225,580	14,539
Plumas	5,135		1,534	6,876	89,750	6,390
Sacramento	55,090	309	4,630	96,650	1,750,170	38,585
San Benito	18,330		780	9,000	108,440	15,845
San Bernardino	18,009		3,769	34,000	269,190	34,135
San Diego	15,112	521	4,513	25,760	289,550	18,252
San Francisco			22,747	1,347,053	15,712,783	99,381
San Joaquin	74,492	1,030	12,360	80,794	676,576	72,704
San Luis Obispo	26,722	738	8,702	38,284	195,204	29,730
San Mateo	940			8,155	63,400	22,076
Santa Barbara	27,480		5,705	7,840	201,420	
Santa Clara	53.495	423	5,905	66,140	896,658	62,410
Santa Cruz	26,160	711	5,688	28,410	269,448	20,420
Shasta	10,012		6,259	14,115	214,843	15,365
Sierra	3,975		550	6,200	130,111	1,585
Siskiyou	23,165		5,400	4,500	250,000	9,500
Solano	53,365	1,362	13,162		468,079	32,015
Sonoma	31,000	827	8,270	51,120	655,300	38,300
Stanislaus	35,350		10,673	26,147	221,406	42,516
Sutter	31,864	486	6,372	1,585	37,240	15,713
Tehama	17,965	317	3,006	9,695	219,630	16,533
Trinity	3,765	102	1,836	925	80,698	3,462
Tulare	43,287	779	8,382	72,800	278,526	38,682
Tuolumne	4,400		2,240	7,325	139,580	9,845
Ventura	14,961		3,380	15,205	145,180	11,462
Yolo	38,765		6,795	7,625	192,625	30,170
Yuba	20,075	50	1,135	21,965	407,725	7,625
Totals	$1,375,244	13,421	$278,026	$2,448,973	$30,755,495	$1,207,935

SCHEDULE SHOWING KINDS OF PROPERTY ASSESSED, ETC.—Continued.

COUNTIES.	SEWING MACHINES.		WAGONS AND OTHER VEHICLES.		WOOL.	
	Number.	Value.	Number.	Value.	Number of Pounds.	Value.
Alameda	1,192	$36,060	3,374	$194,880	350	$70
Alpine	29	415	75	3,875		
Amador	58	975	921	71,110		
Butte		15,845	2,923	131,540		
Calaveras	800	12,000	1,300	65,000		
Colusa	1,066	16,332	3,514	159,559	200	28
Contra Costa	1,025	14,350	2,680	128,640		
Del Norte	157	2,204	234	9,800		
El Dorado	844	16,420	1,239	63,925		
Fresno	1,373	20,577	2,813	152,692	6,800	850
Humboldt	1,386	16,632	2,082	87,726		
Inyo	207	3,106	342	17,784		
Kern		5,143	902	54,267		
Lake	404	6,339	890	44,476		
Lassen	332	4,990		42,375	600	42
Los Angeles	4,426	44,292	8,279	323,512		
Marin	322	3,230	1,076	59,060		
Mariposa	343	6,313	561	29,355		
Mendocino		7,260	1,754	87,425		
Merced	529	8,237	1,672	97,263	10,000	6,500
Modoc	900	11,700	1,200	48,000		
Mono		835	268	10,610		
Monterey	2,704	39,185	3,215	226,335		
Napa	1,105	17,680	2,634	151,590	7,273	800
Nevada	813	13,640	1,162	68,765		
Placer	824	15,330	1,475	75,116		
Plumas		4,870	584	41,355		
Sacramento		14,600	4,103	210,215		
San Benito	520	5,720	1,428	82,270		
San Bernardino	967	11,816	2,170	14,081		
San Diego	817	8,684	2,080	89,719		
San Francisco	11,588	154,140	8,351	525,228		20,930
San Joaquin	3,025	36,300	5,598	307,890	3,202	1,601
San Luis Obispo	1,059	16,538	2,080	111,210		
San Mateo	494	4,940	1,705	85,250		
Santa Barbara		10,385	2,088	123,465		
Santa Clara		35,185	5,468	340,890	100,000	10,000
Santa Cruz	876	9,512	1,601	76,848		
Shasta	795	11,639	1,482	66,220		
Sierra		3,673	321	18,880		
Siskiyou	450	9,000		72,500		
Solano	1,846	21,777	2,620	86,440	16,800	1,176
Sonoma	1,915	18,725	3,976	238,560	1,500	150
Stanislaus	1,083	16,210	1,997	154,075	20,000	1,600
Sutter	539	9,206	1,865	92,320		
Tehama	492	9,591	1,488	69,440		
Trinity	170	3,400	196	11,760		
Tulare	1,517	17,872	3,531	167,920		
Tuolumne	411	10,275	865	47,575		
Ventura		5,261	1,270	50,826		
Yolo	1,018	13,555	1,985	104,610		
Yuba	362	7,330	1,202	68,240		
Totals	50,773	$808,294	106,639	$5,672,577	166,725	$43,747

SCHEDULE SHOWING KINDS OF PROPERTY ASSESSED, ETC.—Continued.

COUNTIES.	BUTTER.		CHEESE.		HONEY.	
	Number of Pounds.	Value.	Number of Pounds.	Value.	Number of Pounds.	Value.
Alameda						
Alpine						
Amador						
Butte						
Calaveras						
Colusa						
Contra Costa						
Del Norte						
El Dorado						
Fresno					19,800	$1,040
Humboldt						
Inyo	600	$150			8,000	400
Kern						
Lake						
Lassen						
Los Angeles				$360		1,149
Marin						
Mariposa						
Mendocino						
Merced						
Modoc						
Mono						
Monterey						
Napa						
Nevada						
Placer						
Plumas						
Sacramento				150		
San Benito						
San Bernardino						
San Diego					600	20
San Francisco						
San Joaquin						
San Luis Obispo	6,200	695	2,425	160		
San Mateo	4,000	400	1,725	85		
Santa Barbara						
Santa Clara			2,275	1,640		
Santa Cruz	4,400	660	26,050	2,084		
Shasta						
Sierra						
Siskiyou						
Solano						
Sonoma	2,000	300	2,000	200		
Stanislaus				36		
Sutter						
Tehama						
Trinity						
Tulare						
Tuolumne						
Ventura					16,000	320
Yolo						
Yuba						
Totals	17,200	$2,205	34,475	$4,715	44,400	$2,929

SCHEDULE SHOWING KINDS OF PROPERTY ASSESSED, ETC.—Continued.

COUNTIES.	Solvent Credits after deduction of Debts.	STEAMERS, VESSELS, WATERCRAFT.		MACHINERY.	QUICKSILVER IN FLASKS.	Railroad Rolling Stock not Assessed by State Board of Equalization. Value.
		Number.	Value.	Total Value.	Value.	
Alameda	$154,304	11	$167,310	$427,075	----------	$23,400
Alpine	1,244	----------	----------	3,138	----------	----------
Amador	38,195	----------	----------	----------	----------	----------
Butte	286,390	----------	----------	111,025	----------	----------
Calaveras	17,000	----------	----------	7,340	----------	----------
Colusa	304,061	----------	----------	143,454	----------	23,000
Contra Costa	101,143	6½	65,000	112,500	----------	11,995
Del Norte	29,779	5	460	10,725	----------	----------
El Dorado	34,240	10	390	14,750	----------	----------
Fresno	67,929	----------	----------	109,794	----------	----------
Humboldt	175,007	41	94,328	56,680	----------	65,390
Inyo	13,850	----------	----------	11,782	----------	----------
Kern	34,597	----------	----------	22,969	----------	----------
Lake	26,574	----------	3,185	13,865	----------	----------
Lassen	87,664	----------	----------	25,940	----------	6,500
Los Angeles	241,889	----------	24,175	257,775	----------	42,810
Marin	87,944	----------	57,965	25,675	----------	----------
Mariposa	31,769	----------	----------	9,735	----------	----------
Mendocino	169,687	----------	3,000	147,525	----------	35,000
Merced	39,602	----------	----------	122,792	----------	----------
Modoc	108,389	----------	----------	50,000	----------	----------
Mono	7,690	----------	----------	13,995	$705	11,275
Monterey	49,292	----------	----------	103,355	----------	----------
Napa	244,172	----------	200	99,195	1,380	----------
Nevada	58,765	----------	----------	55,095	----------	----------
Placer	121,040	----------	----------	52,295	250	----------
Plumas	----------	----------	----------	46,200	----------	----------
Sacramento	263,165	7	1,155	370,785	----------	3,500
San Benito	82,900	----------	----------	57,050	----------	----------
San Bernardino	120,702	----------	----------	110,920	1,000	----------
San Diego	150,860	7	5,125	----------	----------	----------
San Francisco	6,378,892	----------	4,372,095	1,620,440	7,475	368,860
San Joaquin	469,118	121	6,050	300,541	----------	----------
San Luis Obispo	255,106	3	150	42,557	----------	----------
San Mateo	288,930	----------	350	57,600	----------	----------
Santa Barbara	80,254	----------	----------	45,895	----------	----------
Santa Clara	207,754	----------	----------	254,050	24,400	----------
Santa Cruz	62,110	----------	----------	41,540	----------	----------
Shasta	----------	----------	2,100	46,508	----------	----------
Sierra	----------	----------	----------	5,855	----------	----------
Siskiyou	166,000	----------	----------	173,230	----------	----------
Solano	65,499	53	65,500	107,940	----------	----------
Sonoma	242,610	----------	----------	160,000	1,510	19,200
Stanislaus	----------	----------	----------	114,470	----------	----------
Sutter	114,000	----------	----------	59,139	----------	----------
Tehama	68,875	----------	----------	63,750	----------	----------
Trinity	55,908	----------	----------	4,600	----------	----------
Tulare	112,313	----------	----------	80,945	----------	----------
Tuolumne	20,175	----------	----------	25,110	----------	----------
Ventura	71,945	1	30	28,458	----------	----------
Yolo	697,819	----------	----------	86,305	----------	----------
Yuba	83,120	----------	----------	93,535	----------	----------
Totals	$12,590,270	265½	$4,868,568	$5,105,897	$38,720	$610,930

Schedule Showing Kinds of Property Assessed, Etc.—Continued.

Counties.	Pianos.		Musical Instruments. Total Value.	Furniture.	Libraries—Law, Medical, and Miscellaneous. Total Value.	Franchises not Assessed by State Board of Equalization.
	Number.	Value.				
Alameda	1,101	$155,480	$4,345	$1,858,695	$24,170	$302,176
Alpine	-------	-------	345	2,237	690	-------
Amador	48	6,750	742	23,065	750	-------
Butte	-------	-------	40,070	158,640	6,045	-------
Calaveras	50	6,500	5,000	63,475	1,980	900
Colusa	175	38,525	12,550	111,974	8,015	-------
Contra Costa	215	26,660	17,015	135,200	6,200	133,000
Del Norte	76	6,965	-------	19,252	2,585	-------
El Dorado	100	14,880	7,980	71,605	4,685	-------
Fresno	-------	-------	36,186	121,135	12,080	-------
Humboldt	198	25,905	10,032	120,698	8,528	440
Inyo	-------	-------	2,610	17,786	1,275	-------
Kern	-------	-------	5,557	32,828	1,605	-------
Lake	-------	-------	10,475	34,733	1,263	-------
Lassen	-------	-------	6,024	20,938	1,075	300
Los Angeles	1,201	116,497	23,983	585,547	35,347	129,435
Marin	188	20,315	1,560	129,805	4,050	-------
Mariposa	7	850	3,805	15,330	1,065	-------
Mendocino	-------	-------	25,670	78,565	4,230	4,800
Merced	-------	-------	18,310	62,216	2,440	500
Modoc	4	600	30,000	35,266	500	-------
Mono	24	2,120	930	8,930	360	-------
Monterey	-------	-------	49,275	163,395	5,985	-------
Napa	380	50,655	5,845	221,595	11,265	-------
Nevada	-------	29,725	8,275	104,290	8,660	-------
Placer	90	15,400	14,757	100,675	6,320	-------
Plumas	28	5,150	4,150	42,820	1,950	-------
Sacramento	-------	82,000	12,015	445,505	17,405	-------
San Benito	-------	-------	6,560	41,815	2,300	-------
San Bernardino	237	31,000	7,245	136,637	9,163	-------
San Diego	-------	-------	26,530	110,492	5,268	1,950
San Francisco	8,378	766,120	-------	5,104,407	270,882	4,826,515
San Joaquin	-------	-------	117,700	378,777	18,700	-------
San Luis Obispo	-------	-------	27,830	99,069	5,210	5,400
San Mateo	172	13,760	1,430	178,540	3,100	25
Santa Barbara	-------	-------	31,740	102,842	6,040	-------
Santa Clara	-------	-------	144,390	534,995	27,135	-------
Santa Cruz	576	43,776	3,430	84,310	3,760	-------
Shasta	63	10,275	6,715	45,850	3,675	-------
Sierra	-------	3,420	3,090	33,885	1,560	-------
Siskiyou	80	12,000	4,000	28,000	1,750	2,300
Solano	445	53,400	7,920	182,880	5,500	-------
Sonoma	490	52,500	21,000	560,325	12,320	1,000
Stanislaus	-------	-------	39,019	127,449	9,418	-------
Sutter	72	9,666	9,640	34,222	1,700	-------
Tehama	-------	-------	-------	66,413	2,625	-------
Trinity	40	6,000	504	16,940	694	450
Tulare	-------	-------	30,699	77,360	7,240	-------
Tuolumne	74	11,840	3,900	52,918	1,585	-------
Ventura	-------	-------	14,570	35,823	3,217	5,335
Yolo	-------	-------	43,140	125,945	4,225	-------
Yuba	107	15,300	7,810	80,350	5,415	-------
Totals	14,619	$1,632,034	$916,368	$13,027,482	$593,105	$5,414,426

Schedule Showing Kinds of Property Assessed, Etc.—Continued.

Counties.	Total Value of all Descriptions of Real Estate.	Total Value of Personal Property.	Total Value of all Property.	Ditches.	
				Mining.	Irrigating.
Alameda	$49,834,473	$5,842,299	$55,686,086	----------	----------
Alpine	196,194	73,252	269,446	----------	$3,625
Amador	3,132,908	661,353	3,794,261	$135,000	----------
Butte	10,691,955	2,562,723	15,139,633	33.400	39,040
Calaveras	2,191,341	764,037	2,955,378	100,000	----------
Colusa	17,589,105	3,438,362	21,027,467	----------	2,000
Contra Costa	10,987,109	3,270,065	14,257,574	----------	----------
Del Norte	921,933	316,503	1,238,436	20,575	----------
El Dorado	2,188,880	928,520	3,117,400	142,325	4,620
Fresno	10,792,428	3,028,406	13,820,834	----------	----------
Humboldt	7,911,439	2,283,317	10,194,756	1,000	----------
Inyo	681,668	451,598	1,133,266	50	2,000
Kern	3,421,655	1,949,963	5,371,618	----------	----------
Lake	2,204,351	529,232	2,733,583	----------	----------
Lassen	1,068,147	1,028,669	2,096,816	----------	5,455
Los Angeles	31,172,870	5,884,303	37,797,863	----------	740,690
Marin	8,556,709	1,397,906	9,954,615	----------	----------
Mariposa	1,132,616	487,307	1,619,923	12,656	1,005
Mendocino	6,458,862	2,023,596	8,482,456	----------	----------
Merced	8,989,069	1,779,720	10,768,789	----------	130,510
Modoc	1,205,588	1,245,672	2,451,260	----------	----------
Mono	900,157	212,841	1,112,998	4,000	----------
Monterey	8,209,767	2,159,857	10,369,624	----------	----------
Napa	9,385,913	2,490,376	11,875,889	----------	----------
Nevada	3,009,975	1,176,590	5,166,665	230,990	----------
Placer	4,616,552	1,390,006	6,006,559	56,600	24,000
Plumas	1,500,793	564,455	2,065,248	86,850	----------
Sacramento	19,262,585	4,695,760	23,958,345	17,700	----------
San Benito	3,967,105	1,233,750	5,200,855	----------	----------
San Bernardino	6,613,390	1,452,105	8,065,495	1,875	253,675
San Diego	7,620,194	1,571,960	9,192,154	----------	----------
San Francisco	175,564,352	54,893,483	230,457,835	----------	----------
San Joaquin	27,166,850	4,846,980	32,013,830	----------	----------
San Luis Obispo	7,410,454	2,295,692	9,706,146	----------	----------
San Mateo	7,363,771	1,884,041	9,247,812	----------	----------
Santa Barbara	7,029,095	1,494,728	8,523,823	----------	----------
Santa Clara	33,224,291	4,763,491	37,987,782	----------	----------
Santa Cruz	6,519,550	1,180,680	7,779,230	----------	----------
Shasta	2,483,393	1,098,858	3,582,251	18,925	10,072
Sierra	1,356,050	416,147	1,772,197	86,500	5,095
Siskiyou	2,411,576	1,583,195	3,994,771	55,000	----------
Solano	13,596,279	2,465,294	16,061,573	----------	----------
Sonoma	21,478,260	4,026,615	25,504,875	----------	----------
Stanislaus	11,613,447	2,304,119	13,917,556	4,000	23,000
Sutter	6,442,159	1,273,271	7,715,428	----------	----------
Tehama	6,985,392	1,397,042	8,479,644	----------	----------
Trinity	691,617	398,302	1,089,919	76,005	2,258
Tulare	8,577,498	2,713,052	11,290,550	----------	----------
Tuolumne	1,847,363	658,759	2,506,122	87,780	4,500
Ventura	3,667,940	981,699	4,649,639	----------	5,000
Yolo	13,987,229	2,813,376	16,800,605	----------	28,000
Yuba	4,086,080	1,413,710	5,499,790	12,250	3,660
Totals	$609,917,977	$151,797,037	$768,506,660	$1,183,481	$1,288,205

SCHEDULE SHOWING KINDS OF PROPERTY ASSESSED, ETC.—Continued.

COUNTIES.	Consigned Goods—Value.	TOBACCO.		BROOM CORN.		Other Property—Total Value.
		Number of Pounds.	Value.	Number of Pounds.	Value.	
Alameda		*	$8,200			$475,055
Alpine						
Amador						8,780
Butte						
Calaveras						33,830
Colusa						
Contra Costa						
Del Norte						
El Dorado						31,340
Fresno						2,750
Humboldt						19,766
Inyo						
Kern						
Lake						
Lassen						44,674
Los Angeles						337,217
Marin						14,690
Mariposa						10,842
Mendocino						128,071
Merced	$1,100					40,365
Modoc						500
Mono						
Monterey						
Napa						127,600
Nevada						81,025
Placer						96,154
Plumas						22,920
Sacramento						
San Benito						
San Bernardino						5,550
San Diego						1,788
San Francisco	429,101					
San Joaquin	900					8,894
San Luis Obispo						33,267
San Mateo						477,510
Santa Barbara						6,425
Santa Clara						30,690
Santa Cruz	5,000					4,657
Shasta						17,024
Sierra						275
Siskiyou						6,749
Solano						19,350
Sonoma	3,000					
Stanislaus						50,111
Sutter				112,000	$3,930	19,502
Tehama						51,075
Trinity						1,000
Tulare						
Tuolumne						
Ventura						15,391
Yolo						
Yuba						750
Totals	$439,101		$8,200			$2,225,793

* Number of pounds not given. Other counties make no report.

Horticultural and Viticultural Statistics for 1885 and 1886.

Note.—We have done our best to secure the statistics relating to horticulture and viticulture. They are very imperfect, as one acquainted with the subject can easily see.

Until there is a penalty for such carelessness as characterizes the work generally of Assessors in this respect, it is useless for the Board to further attempt to obtain any information.

The Assessor of Marin reports the number of acres of wine grapes in his county as: 1 year old, 15,480; 2 years old, 45,700; 3 years, 28,120; 4 years, 10,000; and 5 years, 8,000.

The Assessor of Contra Costa County has the distinguished honor of representing a county in which, so far as his report shows, not a single fruit tree is growing.

In addition, Alameda reports 17,175 almond trees, 223 walnut; Mariposa, 23 walnut, 14 almond; Merced, 3,938 almond; Santa Clara, 38,000 nut trees; Stanislaus, 1,359 almond; Sutter, 3,205 almond, 101 walnut; Yolo, 11,818 almond, 1,525 walnut.

VITICULTURAL REPORT FOR 1885.

COUNTIES.	NUMBER OF ACRES OF GROWING GRAPEVINES.														
	Table.					Wine.					Raisins.				
	1 Year.	2 Year.	3 Year.	4 Year.	5 Year.	1 Year.	2 Year.	3 Year.	4 Year.	5 Year.	1 Year.	2 Year.	3 Year.	4 Year.	5 Year.
Alameda	10	10	25	15	35	874	1,219	1,594	228	565					
Amador	50	40			115					425					15
Butte			3	1	337		2			86	12	50	21	21	13
Calaveras	20	240	290	150	180					150					30
Colusa	34	10	14		5										
Contra Costa	1,000	2,200	1,000		250	3,000									
El Dorado	12	5	2	1	20	105	67	30	11	1,145			2		41
Fresno	71	146	81	75	53	970	742	877	859	396	620	416	429	380	168
Lake	10	15	10	2	20	120	250	220	20	20					
Los Angeles		300	1,500	500	400	2,005	3,500	8,000	5,000	3,500	200	400	300	100	
Mariposa					80										
Mendocino		10	15		25	15				18					
Merced	7	64	46		170	40	40	20		123	7	3			10
Napa	5	189	144	82	13	1,547	2,396	2,956	2,256	4,697	4		7		8
Nevada	6	5	4		90	1		10		44					
Placer	122	116	116	55	225	114	270	136	35	270	15	32	45	22	245
Sacramento	131	340	225	58	550	639	2,295	220	50	1,344		126	3	73	125
San Benito						21	15	45		74					
San Bernardino						315	220	320	342	1,213	385	112	175	410	613
San Diego	42	35	54	20	31	110	71	23	35	28	557	540	260	98	68
San Joaquin	100	110	35	65	208	200	160	40	50	200					
San Luis Obispo	152	140	75	35	42		2	3	5	15					
San Mateo						100	100	150	100	50					
Santa Clara	740	283	450	80	385	1,486	1,210	826	347	1,017	56	25	15	30	13
Santa Cruz	75	52	285	79	36	90	69	79	60	218					
Shasta	10	8			40	20	8			14	33	19			1
Solano	377	244	103	59	172	286	219	194	202	432	30	53	11	77	417
Sonoma	50	400			1,450	2,000	5,272	3,640	1,225	6,046					
Stanislaus	3	10			20	3				60					
Sutter	5	10		3	41	3				17	53	11			7
Tehama	144	146	30	15	10	1,500	1,000	1,500	10	100					
Ventura				30						100					
Yolo		70	60	20	5	126	240	400	300	700					
Yuba	3	3			10			13	20	200					
Totals	3,179	5,201	4,567	1,345	5,018	15,685	19,367	21,305	11,155	23,267	1,972	1,787	1,268	1,211	1,774

SCHEDULE

Showing Number of Trees Growing in 1886.

COUNTIES.	Lemon.	Orange.	Olive.	Apple.	Pear.	Peach.
Alameda*	466	1,689	3,106	101,847	99,149	66,742
Alpine				630	43	17
Amador	25			22,225	3,743	20,330
Butte	728	6,934	3,680	20,848	15,654	29,423
Calaveras	50	500	35	400,000	110,000	525,000
Colusa	38	319	79	7,924	8,208	13,682
Del Norte				6,000	160	104
El Dorado	20	94		60,042	30,839	111,277
Fresno	17	345	55	11,295	35,203	76,116
Humboldt				27,435	2,339	2,239
Inyo				2,306	1,200	1,850
Kern	225	360		14,430	850	27,380
Lake		75	800	20,800	5,900	15,400
Lassen				1,050	100	100
Los Angeles	55,620	729,865	4,520	82,950	26,480	47,010
Marin		80		25,318	2,753	818
Mariposa	3	14	2	1,331	821	877
Mendocino				14,500	6,000	3,000
Merced	127	159	474	5,301	4,815	15,095
Modoc				4,075	246	252
Mono				20		
Monterey		50		4,700	1,900	450
Napa	122	780	8,559	39,708	35,328	54,966
Nevada		25	12	43,200	7,200	7,100
Placer	497	7,313	4,390	37,671	45,765	148,001
Plumas		3		9,693	556	390
Sacramento	138	989	210	24,989	95,075	288,378
San Benito		7	8	41,870	4,860	5,422
San Bernardino	7,845	214,531	1,150	5,840	29,345	454,370
San Diego	1,208	5,773	5,571	12,566	7,849	4,398
San Joaquin	10	931	113	5,854	10,240	16,990
San Luis Obispo	200	350	580	31,500	5,075	8,500
San Mateo				6,000	2,500	2,000
Santa Barbara	3,481	4,864	10,379	15,492	1,580	4,760
Santa Clara	207	1,623	9,654	89,690	123,795	146,445
Santa Cruz				94,350	20,500	11,450
Shasta	26	52	64	9,352	3,840	23,026
Sierra				1,985	289	254
Siskiyou				39,122	2,210	7,348
Solano	9	825	224	59,310	65,794	106,482
Sonoma	1,123	1,317	8,829	196,123	145,216	98,600
Stanislaus	75	872	20	4,506	3,837	12,564
Sutter	83	708	18	6,747	16,297	57,613
Tehama	153	509	175	18,901	10,373	69,120
Trinity				7,430	1,279	1,556
Tulare	94	382	130	31,169	35,691	90,915
Tuolumne				300	100	500
Ventura	200	500	150	700	250	500
Yolo	51	282	37	1,772	30,652	32,058
Yuba	31	267	3	58,572	3,085	3,591
Totals	72,872	983,387	63,027	1,729,439	1,064,984	3,614,459

* No orchard in Alameda Township, and Assessor of Murray Township makes no report.

SCHEDULE SHOWING NUMBER OF TREES GROWING IN 1886—Continued.

COUNTIES.	Quince.	Fig.	Prune.	Plum.	Cherry.	Apricot.	Nectarine.
Alameda	3,375	1,915	37,285	38,574	104,933	118,623	336
Alpine			2	105	14	5	
Amador	300	550	3,500	12,300	300	1,525	125
Butte	662	2,998	7,843	10,327	4,451	10,680	1,660
Calaveras	2,300	20,000	800	46,620	5,000	2,000	900
Colusa	422	2,621	4,797	3,476	1,268	8,462	1,363
Del Norte	20	175	450	127			
El Dorado	391	927	6,228	27,446	2,210	818	4,444
Fresno	2,406	4,746	7,698	5,348	1,194	44,133	21,629
Humboldt	136	59		6,087	1,670		
Inyo	25	25	300	500	150	360	25
Kern		860		5,724		3,280	1,856
Lake	300	350	20,000	5,800	1,350	1,610	500
Lassen				260	250	100	
Los Angeles	3,675	4,765		13,450		15,175	
Marin	298	42		1,799	545	2,650	
Mariposa	21	275	115	293	69	105	68
Mendocino	500	60	5,000	5,000	2,000	1,000	500
Merced	1,221	1,414	2,120	1,164	936	2,462	881
Modoc	45		86	329	167	65	
Monterey	40	20	900	1,100	1,200	600	30
Napa	3,243	1,321	50,824	16,750	18,694	7,489	1,050
Nevada	917	812	223	35,170	1,125	260	120
Placer	1,932	4,475	13,040	11,893	13,643	6,640	2,919
Plumas	37	1		574	228		
Sacramento	1,249	2,275	30,311	51,110	10,371	13,515	510
San Benito		35	14,480	12,120	2,460	11,986	
San Bernardino	213	1,927	2,345	816	535	293,450	6,450
San Diego	733	3,719	2,317	986	1,442	7,572	337
San Joaquin	531	1,480	1,083	1,172	4,951	15,768	219
San Luis Obispo	500	1,100	24,565	12,150	350	9,100	500
San Mateo	250	200	800	1,000	1,000	700	200
Santa Barbara	471	714	4,119	2,120	260	10,121	432
Santa Clara	3,320	795	616,400	83,980	89,505	399,745	905
Santa Cruz	700	250	17,500	6,300	11,000	9,000	
Shasta	235	1,410	6,041	3,279	1,130	2,680	710
Sierra	58			126	162		
Siskiyou	60		564	3,260	3,374	376	586
Solano	1,226	4,954	28,650	26,962	17,044	120,831	165
Sonoma	13,000	11,300	89,165	12,412	12,706	13,120	11,500
Stanislaus	142	1,031	2,716	2,618	630	6,408	418
Sutter	456	2,073	10,222	9,010	2,291	18,269	2,973
Tehama	780	3,996	18,128	11,897	6,638	12,324	2,499
Trinity	63			1,241	623	39	21
Tulare	1,016	4,032	18,198	9,265	1,068	34,652	11,807
Tuolumne			20	200	50	25	
Ventura	75	40	1,000	5,000	100	3,000	100
Yolo	85	8,966	5,896	5,345	440	20,822	1,129
Yuba	576	448	1,500	2,732	1,000	3,200	2,530
Totals	48,085	99,176	1,067,231	515,317	330,537	1,230,745	82,397

DETAILED STATEMENT

Of the Expenditure of the Appropriations for Traveling Expenses and Postage, and Contingent Expenses, for Thirty-sixth and Thirty-seventh Fiscal Years, beginning July 1, 1884, and ending June 30, 1886.

TRAVELING EXPENSES—THIRTY-SIXTH YEAR.

July 1, 1884, to June 30, 1885.

Charles Gildea	$534 65
John Markley	472 80
L. C. Morehouse	357 60
C. E. Wilcoxon	464 95
E. W. Maslin	87 15
J. P. Dunn	78 00
	$1,995 15
Balance unexpended	4 85
Appropriation	$2,000 00

TRAVELING EXPENSES—THIRTY-SEVENTH YEAR.

July 1, 1885, to June 30, 1886.

Charles Gildea	$371 20
John Markley	450 05
L. C. Morehouse	411 85
C. E. Wilcoxon	460 95
E. W. Maslin	228 60
J. P. Dunn	123 05
Hall and McGrath, San Francisco	200 00
	$2,245 70
Transferred to thirty-eighth year	4 30
Appropriation for thirty-seventh year	$2,250 00

CONTINGENT AND POSTAGE ACCOUNT—THIRTY-SIXTH YEAR.

From July 1, 1884, to June 30, 1885.

Postage, telegrams, and miscellaneous	$153 01
Books—records of counties	40 50
Wells, Fargo & Co.	26 55
Newspapers	32 25
Map	10 00
B. K. Brier, as phonographic reporter	20 00
Wm. Gwynn, labor on statistics	100 00
	$382 31
Unexpended	117 69
Appropriation	$500 00

CONTINGENT AND POSTAGE ACCOUNT—THIRTY-SEVENTH YEAR.

From July 1, 1885, to June 30, 1886.

Ice	$5 70
Telegraph bills	23 24
Expense account	1 85
Newspapers	43 70
Books for office	20 00
Box rent, Post Office	4 00
Post Office cards	2 50
	$100 99
Reserved for use in the thirty-eighth year	99 01
Appropriation	$200 00

E. W. Maslin, being duly sworn, deposes and says, that the foregoing is a true statement of the expenditures of the appropriations made for the thirty-sixth and thirty-seventh fiscal years.

E. W. MASLIN, Clerk.

Subscribed and sworn to before me, this, the twenty-ninth November, 1886.

THOS. L. THOMPSON,
Secretary of State.

INDEX.

PAGE.
Report 3
Basis of taxation and rate, 1885 and 1886 20
Amount added to assessment for 1885 21
Increase apportioned in classes, 1885 21
Valuations as returned by Auditors, 1885 22–24
Rolling stock, railroads, 1885 26
Apportionment of assessment of railroads for 1885 27
Amount railroad assessment by counties 28
Valuation by Auditors for 1886 22–34
Rolling stock for 1886 36
Assessment by Assessors of railroad property, 1885 and 1886 37
Apportionment of assessment of railroads for 1886 38
Amount railroad assessment by counties 40
Acres assessed, value of mortgages, etc. 44
Assessments of 1885 and 1886 compared 46
County rates of taxation from 1875 to 1886 48
Value of property and rates of State taxation from 1850 to 1886 50
Agricultural statistics 52

BIENNIAL REPORT OF THE DIRECTORS

AND THE

Thirty-third and Thirty-fourth Annual Reports

OF THE

SUPERINTENDENT OF THE INSANE ASYLUM

OF THE

STATE OF CALIFORNIA,
(AT STOCKTON.)

For the Two Years Ending June 30, 1886.

SACRAMENTO, CAL.
STATE OFFICE...........JAMES J. AYERS, SUPT. STATE PRINTING.
1886.

OFFICERS OF THE ASYLUM.

DIRECTORS.

ROBERT WATT, President	San Rafael.
J. K. DOAK, Vice-President	Stockton.
J. D. McDOUGALD	Stockton.
C. H. RANDALL	Sonora.
Dr. H. N. RUCKER	Merced.

TREASURER AND EX OFFICIO SECRETARY.

N. M. ORR	Stockton.

RESIDENT OFFICERS.

W. H. MAYS, M.D.	Superintendent.
W. R. LANGDON, M.D.	Assistant Physician.
W. A. WASHINGTON, M.D.	Assistant Physician.
H. W. TAYLOR	Superintendent's Secretary.
T. J. KEYS	Steward.
WILLIAM STOCKWELL	Supervisor.
Mrs. M. E. RAMSELL	Matron.

DIRECTORS' REPORT.

To his Excellency GEORGE STONEMAN, *Governor of the State of California:*

In accordance with law, as Directors of the Asylum for the Insane of the State of California, at Stockton, we submit our biennial report for the two years ending June 30, 1886, together with those of the Medical Superintendent and Treasurer, which are made parts of this report.

During the past two years a number of very important improvements have been made to the institution under our supervision, all of which are of a permanent character, and have added materially to the accommodations afforded the inmates, and have greatly increased the facilities for securing for them suitable care and treatment.

As will be seen by the report of the Superintendent, the number of patients has rapidly increased during the two years embraced in this report, there being one thousand two hundred and fifteen, June 30, 1884, and one thousand four hundred and eighty-six, June 30, 1886. Although the accommodations have been greatly enlarged, and for many of the patients greatly improved, the increase in numbers has been so great as to still leave the institution in a crowded condition.

The new building constructed from the appropriation made in 1881 was completed in the latter part of 1884, and was immediately furnished, and occupied by patients removed thereto from the long overcrowded wards of the other buildings.

The new structure has been found well adapted to the purposes for which it was designed, and the number of patients it was intended to accommodate can therein be economically cared for and treated. Within this building are now the bakery, kitchen, and cooking arrangements for the entire male department, and also the general offices of the institution; and we are gratified to be able to report that the appropriation has been so expended as to furnish largely increased and wholly satisfactory accommodations for patients, at a minimum cost *per capita*.

The sewerage system, constructed from plans furnished by the State Engineer, and under his supervision and direction, was completed in the latter part of 1884. Several unforeseen obstacles had to be overcome before all the buildings of the institution could be connected therewith, but the necessary changes were made, and the system has been in operation for nearly two years, with very beneficial results to the sanitary condition of the several buildings. The experiment of disposing of this sewage matter on the land has not been wholly successful, on account of the adobe character of the soil, which had never before been cultivated. Little difficulty will be experienced during the summer season, when the ground is dry, but when saturated thoroughly by the winter rains, the land does not absorb the offensive matter, and some plan should be adopted whereby the drainage of the asylum can be discharged into some water channel, to be carried away by the winter's floods without becoming offensive and dangerous to the health of residents of the vicinity.

The new laundry for the female department was completed in 1884, and immediately furnished with machinery and put in successful operation. It has been found a great convenience, and a number of the female patients here find employment which to them appears to be an agreeable change.

A dairy barn had long been needed, and during the last year this Board has had a substantial structure erected which will afford accommodations for seventy cows, and thus enable the management to obtain, at moderate cost, a supply of milk for the institution. In this connection it may be said that during the last two years a great improvement has been made in the dairy, and that now a fine herd of cows comprises a portion of the property of the institution.

During the last two years a large amount of work has been done in grading the grounds; several natural depressions, which could not be successfully drained, and therefore became objectionable cesspools during the rainy season, have been filled, and a large amount of earth has also been required to fill an excavation made upon the grounds at an early day from which clay was obtained to make brick used in the construction of the old building. This work had to be done for sanitary reasons which are obvious. A large amount of earth and gravel has also been required for grading around the new building and in the yards used by the patients for exercising. The roads leading through the grounds have also required considerable gravel in order to afford communication between the different buildings. The expenditures made for this purpose will permanently remedy defects that have long existed and have been an annoyance and inconvenience in the management of the institution.

At the last regular session of the Legislature an appropriation of $25,000 was made for new heating apparatus and repairs of the old asylum building. The condition of that structure was found to be even worse than had been supposed, and the necessity of a thorough renovation was proven to be very great. We call your attention to the report of the Superintendent concerning the work performed, and are satisfied that it will meet with your approval. By the changes made, because of the expenditure of that appropriation, increased accommodations have been secured for patients, while by the improved method of heating the building, and the construction of the large dining-room, the expenses of care and attendance will be reduced.

The removal of the old wooden structure, known as the cottage ward, has long been regarded as a necessity, as owing to its dilapidated condition it was both unsafe and uncomfortable. The patients who were quartered therein, have been now furnished with more suitable accommodations in the new building and the newly arranged wards of the old building.

Although the improvements made during the last two years have greatly added to the comfort of the unfortunates there confined, and materially increases the facilities for affording them the required care and treatment, yet other improvements are necessary, in order that the objects sought to be attained by the establishment of the institution may be realized, and it may become a place for curing mental disorders, as well as an asylum for the safekeeping and maintenance of persons thus afflicted.

The building occupied by the female patients is at present crowded, and while this Board does not desire to recommend the construction of any more new buildings or additions, hoping that the completion of the new asylum at San José will give the desired relief, yet there is an urgent necessity for an appropriation for repairing and partially remodeling the female department building. Its heating and plumbing arrangements are very defective and out of repair, and should be thoroughly overhauled and placed in a more satisfactory condition. An associate dining-room should be provided, which would not only decrease the cost of attendance, but would also allow the conversion of some of the present ward dining-rooms into dormitories for the use of the patients. The building should also be painted.

The boiler capacity at the male department should be increased in order to supply the demand for steam for heating purposes, and to pump water to supply that department.

We urgently call your attention to the law making it the duty of this Board to provide upon the asylum grounds suitable apartments for the use of the Assistant Physicians and their families. Owing to the fact that no appropriation for that purpose has ever been made, we have been unable to furnish the required accommodations, and the Assistant Physicians are necessarily compelled to reside outside the grounds. We deem it imperatively necessary now, when so large a number of patients are under care and treatment, that the medical force should reside upon the grounds, subject to any call that may be made for their services upon the shortest possible notice.

We regard it also necessary that the Supervisor should reside upon the asylum grounds, and urgently recommend that an appropriation be made by the Legislature to erect such residences as are required for the use of these officers.

Workshops, in which certain classes of patients could be employed, also ought to be provided. We also cordially indorse the recommendation of the Medical Superintendent, that a dead-house should be provided for the reception of the dead.

In order to carry out necessary improvements, and meet the urgent requirements that are made upon us to protect and keep the property of the State in repair, and provide the necessary means for the permanent and economical care of that unfortunate class for whose accommodation and maintenance this institution has been established, we think that an appropriation of at least $60,000 will be necessary. The increase of patients will demand a corresponding increase in the appropriation to be made for the general support of the institution for the next two fiscal years. During the two years covered by this report the number of patients here has been increased by two hundred and seventy-one, and we think we are justified in our expectations, that before the hoped relief will come by the completion of the asylum for the chronic insane, there will be sixteen hundred patients to be provided for in this institution, and that the average number for the next two fiscal years will be at least fifteen hundred. To support this large number at the rate of 40 cents per day per capita, which is the average cost of their maintenance, will require an appropriation of $216,000 for each of the next two fiscal years.

We desire to call your special attention to the recommendations of the Medical Superintendent concerning the appointment of another Assistant Physician, and also to his suggestions as to the advantages that would accrue by providing workshops for the employment of such patients as would be benefited thereby.

The last two years have been made eventful in the history of this institution by the death of two persons officially identified with its management. Hon. Caleb Dorsey of Tuolumne, appointed by your Excellency a member of this Board, died March, 1885. Mr. Dorsey by temperament and education was admirably fitted for the trust that had been imposed upon him, and his sudden death was the cause of serious regret among the friends of this institution.

Dr. William Travis Browne, Superintendent of this institution, who for eleven years had been prominently identified with its management, was called hence by death February 20, 1886. He had faithfully labored to give proper care and attention to the unfortunate wards of the State here confined, and had so identified himself with their interests as to make the successful management of this institution a laudable personal ambition. His faithful services will be held in grateful remembrance by all whose sympathies are awakened by the unhappy condition of those for whom he so long labored.

Finally we desire to acknowledge our obligations to yourself and other State officers for courtesies extended and aid given us in the management of the trust placed in our hands, and to again commend this important charity to your favorable notice, believing that you will bespeak for it a liberal spirit and fostering care upon the part of the Legislature.

ROBT. WATT.
J. K. DOAK.
CHAS. H. RANDALL.
J. D. McDOUGALD.
H. N. RUCKER.

STOCKTON, October 20, 1886.

TREASURER'S REPORT.

Office of Secretary, Board of Directors, and
Treasurer of Asylum for the Insane,
Stockton, Cal., July 30, 1886.

To the Board of Directors of the State Insane Asylum:

Gentlemen: In accordance with the by-laws of this institution, I have the honor to present the following biennial report of the receipts and disbursements of the State Insane Asylum at Stockton for the two years ending June 30, 1884:

GENERAL FUND.

Receipts.

July 1, 1884, balance as per last biennial report	$42,340 71	
July 25, 1884, Warrant No. 78	7,941 28	
August 28, 1884, Warrant No. 834	16,217 72	
August 30, 1884, Warrant No. 3,125	17,980 41	
August 30, 1884, Warrant No. 3,582	16,240 75	
October 10, 1884, Warrant No. 1,911	14,627 22	
October 29, 1884, Warrant No. 2,088	15,340 13	
November 21, 1884, Warrant No. 2,703	17,894 55	
December 20, 1884, Warrant No. 3,387	18,454 48	
January 20, 1885, Warrant No. 4,444	16,245 95	
February 13, 1885	18,012 75	
March 20, 1885, Warrant No. 7,849	18,837 60	
March 27, 1885, Warrant No. 7,883	3,915 43	
March 27, 1885, Warrant No. 7,894	6,214 65	
April 23, 1885, Warrant No. 8,765	16,596 82	
May 21, 1885, Warrant No. 9,376	15,760 57	
June 19, 1885, Warrant No. 10,078	12,012 20	
August 20, 1885, Warrant No. 998	15,464 65	
September 24, 1885, Warrant No. 1,817	15,848 47	
October 16, 1885, Warrant No. 2,760	15,723 20	
December 1, 1885, Warrant No. 3,649	17,205 74	
December 24, 1885, Warrant No. 4,238	16,883 19	
February 3, 1886, Warrant No. 5,606	17,132 35	
February 17, 1886, Warrant No. 5,903	15,895 10	
February 25, 1886, Warrant No. 5,960	1,444 45	
March 20, 1886, Warrant No. 6,436	15,147 86	
April 19, 1886, Warrant No. 7,284	17,481 59	
May 28, 1886, Warrant No. 8,225	17,639 10	
June 29, 1886, Warrant No. 9,059	17,827 22	
Total receipts for two years		$458,326 14

Disbursements.

Amount paid for general support, as per vouchers now on file, for the year ending June 30, 1885	$196,898 30	
For year ending June 30, 1886	198,257 38	
Transferred to Contingent Fund, February 10, 1885	20,000 00	
Transferred to Contingent Fund, August 11, 1885	8,024 02	
Balance in General Fund, June 30, 1886	35,146 44	
		$458,326 14

CONTINGENT FUND.

Receipts.

June 30, 1884, balance as per last biennial statement	$7,361 59	
Board, etc., for year ending June 30, 1885	8,052 54	
Steward's sales for year ending June 30, 1885	1,681 87	
Board, etc., for year ending June 30, 1886	7,648 25	
Steward's sales for year ending June 30, 1886	1,604 09	
February 5, 1885, transferred from General Fund	20,000 00	
February 5, 1885, transferred from Furnishing Fund	580 35	
August 11, 1885, transferred from General Fund	8,024 02	
August 11, 1885, deposits of deceased patients	3,190 97	
		$58,143 68

Disbursements.

New laundry building and fixtures	$3,140 84	
Boring wells	139 61	
Interest and expressage	2,832 63	
Steam traps for boilers	240 00	
Three horses	525 00	
Buggy and harness	249 24	
Hogs	489 31	
Cows	475 00	
Grading grounds and graveling streets	6,596 93	
Superintendent's expenses to convention of physicians	400 00	
Sewerage, connections, etc.	4,307 83	
Completion of new building and drainage	14,221 10	
Furnishing new building	20,707 71	
Attorney's fees	73 25	
Painting and repairs	758 01	
Mileage	93 60	
Cow barn, concrete work, and grading grounds	5,010 70	
Trees	57 50	
Cars for track from kitchen to dining-room	150 55	
To balance		2,325 13
	$60,468 81	$60,468 81

NEW BUILDING FUND.

(Appropriation of $163,000. March 13, 1883.)

Receipts.

July —, 1884, Warrant No. 30	$14,782 50	
Warrant No. —	7,308 00	
Warrant No. 79	3,720 29	
August 29, 1884, Warrant No. 646	1,411 35	
Warrant No. —	17,438 27	
		$44,660 41

Disbursements.

Paid Confer Brothers:		
Warrant No. 30	$14,782 50	
Warrant No. —	7,308 00	
Warrant No. —	17,438 27	
Paid sundry bills, outside of contract, as per voucher	5,131 64	
		$44,660 41

HEATING AND REPAIRS.

(Appropriation, $25,000. March 10, 1885.)

Receipts.

September 24, 1885, Warrant No. 1,814	$1,159 41	
December 1, 1885, Warrant No. 3,650	2,911 83	
Warrant No. —	2,466 00	
December 24, 1885, Warrant No. 4,237	942 50	
February 3, 1886, Warrant No. 5,703	1,800 00	
February 20, 1886, Warrant No. 5,910	2,186 28	
March 4, 1886, Warrant No. 6,239	3,335 40	
March 24, 1886, Warrant No. 6,444	899 13	
Warrant No. 6,445	908 60	
April 19, 1886, Warrant No. 7,283	953 67	
May 28, 1886, Warrant No. 8,224	1,355 80	
June 29, 1886, Warrant No. 9,058	1,320 17	
		$20,238 79

Disbursements.

Paid Confer Brothers, contractors:		
Warrant No. —	$2,466 00	
Warrant No. 5,702	1,800 00	
Warrant No. 6,239	3,335 40	
Warrant No. 6,445	908 60	
Paid sundry bills as per vouchers on file	11,728 79	
		$20,238 79

All of which is respectfully submitted.

N. M. ORR, Treasurer.

SUPERINTENDENT'S REPORT.

YEAR ENDING JUNE 30, 1885.

To the Directors of the Insane Asylum of the State of California, at Stockton:

Gentlemen: I hereby submit for your consideration, as required by the statutes of the State, the thirty-third annual report of the operations of the asylum for the fiscal year ending with June 30, 1885.

As another annual report will be made by the Superintendent, to be incorporated with your biennial report to the Governor next year, I deem it better to defer description of the improvements of the past year, some of them not yet completed, until the next report.

The appended statistical tables will show the number of patients and their movements during the year 1884–5. By them it will be seen that the year commenced with one thousand two hundred and fifteen patients, and that three hundred and forty-one were admitted, making the whole number under treatment one thousand five hundred and fifty-six. Of those discharged during the year, sixty were recovered, thirteen improved, and six unimproved; eighty-seven died and eleven escaped; making the aggregate number leaving the asylum one hundred and seventy-seven. The number of patients remaining at the end of the year was one thousand three hundred and seventy-nine, or one hundred and sixty-four more than the year commenced with.

By reference to the table of averages, it will be seen that the per capita expense of maintaining the asylum during the year was forty-one cents; the same as the preceding year.

Respectfully submitted.

W. T. BROWNE, M.D.,
Medical Superintendent.

SUPERINTENDENT'S REPORT.

YEAR ENDING JUNE 30, 1886.

To the Directors of the Stockton State Insane Asylum:

GENTLEMEN: In conformity with the provisions of the State law, I have the honor to submit the thirty-fourth annual report of this institution; for the year ending July 1, 1886. The conduct of affairs during the greater portion of the year pertains to my predecessor, Dr. W. T. Browne, whose untimely death occurred February 20, 1886.

The year began with 1,379 patients, and ended with 1,486.

There were admitted during the year 374 males, and 130 females, a total of 504. The whole number under treatment during the year was 1,883.

The discharges numbered 262; the deaths, 135.

Of the 1,486 patients now on hand, 1,077 are males, and 407 females. The numerical disproportion between the sexes, though great, is less than in former years, and is constantly decreasing.

The per capita cost of maintaining the asylum for the thirty-fourth fiscal year, as will be seen in the appended tabular statements, was 37 cents and 2 mills. The cost for 1885 was 41 cents; for 1884, also, 41 cents. The diminished expense this year is owing partly to the general reduction in the prices of staple articles of subsistence, and partly to an increase in the number of patients treated, without a corresponding advance in the payroll.

RECOVERIES.

Of those admitted during the year, 40 per cent recovered. This is a fair showing, and will bear comparison with the cure-rate of other structural diseases, pneumonia for instance. A certain proportion of these recoveries, it is true, are followed by relapse, for we know that one attack of brain disease predisposes towards another, but it may be questioned whether the liability to after attacks is any greater in affections of the brain than it is in disease of the heart, kidney, or other organs. Maudsley's estimate, that of those discharged as cured, one half will be returned sooner or later, is, perhaps, over high.

As a rule it is only the recent cases that recover. The patient who has been in the asylum a year and a half, or two years, his prospects of restoration are fast dwindling to a vanishing point. The fact remains, nevertheless, that if taken in hand in its early stages, insanity is as curable as the average run of diseases, except where there is a palpable hereditary fault. The cure-rate of those who have been insane over four years ranges below one per cent. The advantages of the early hospital treatment of insanity could not be more forcibly presented.

DEATHS.

The death-rate is 7.17 per cent of the number under treatment. The majority died of chronic disease of long standing. Some had reached an advanced age, in several instances having been inmates over thirty years.

CHINESE.

There are 70 Chinese under our care, 67 males and 3 females. In the Napa Asylum about as many more may be found. In proportion to the number of Chinese in the State, I consider mental disease particularly rife amongst them. In China, insanity partakes somewhat of the nature of a penal offense. Hence travelers in that country, seeing little of it, proclaim its non-existence, and base thereon deductions unfavorable to our civilization. But in Japan, where enlightened and progressive views are making rapid headway, institutions for the care of the insane are beginning to dot the land.

The injustice of imposing upon the people the burden of supporting these one hundred and forty insane Chinamen year after year, calls for attention. At $130 per annum apiece, they are costing the State $19,000 yearly. The expatriation of mentally defective immigrants is, in other places, a well established custom. From the ports of New York and Boston, so promptly and so frequently have insane aliens been reshipped to their own countries, that the measure no longer even attracts comment. Less than one half the amount annually expended for their care and maintenance here would charter a vessel and crew and return the whole number to Hong Kong, whence they came.

PREVALENCE OF INSANITY.

Has our State more than its share of insane? There is a prevailing impression that mental disease is spreading amongst us at an unusual rate; indeed, I have heard the phenomenon explained on climatic and atmospheric, as well as other grounds. A few considerations may here be presented to show that this impeachment of the mental stability of our people is unfounded.

First, let it be remembered that the aggregate number of the insane must ever be on the increase in any prosperous growing community. So plainly is this so, that the demand for additional asylum accommodation may generally be taken as an index of the advancement of a State, and a proof of its material and social development. But the repetition of these demands, with the frequent attraction of public attention to the subject, conveys to some the belief that insanity is inordinately active here. California, absorbing a large immigration yearly, yet with capabilities for great future numerical expansion, must expect to be called on to erect a new asylum every nine or ten years for perhaps the next half century.

No definite conclusion as to the prevalence of insanity in a community can be reached except on the basis of population. But what is the present population of California? The Federal Census of 1880 placed it at 864,686. A comparison of this with former censuses fortifies the claim upon which most estimates of our numbers are now made, namely, that the State has for many years been steadily increasing at the rate of 100,000 every 3 years. Accepting this count as probably near the truth, the present population would be something over a million.

On this basis the proportion of insane here is not in excess of that of many other States. There are now 2,922 inmates in our two asylums, which gives us 1 to every 360 inhabitants. The ratio in New York is 1 in 365; in Massachusetts, 1 in 350; in Australia, 1 in 375; in Great Britain, 1 in 345; in France, 1 in 400; in United States, 1 in 545, excluding idiots, 1 in 300, including idiots.

Again, there is a gradual decrease in the number of persons annually sent to the asylum, in proportion to the population. It is the proportion that become insane annually that expresses the actual prevalence of mental disease among a people. From a file of the reports of the two asylums it will be seen that the number of those attacked with insanity is proportionately less now than it was three years ago, and that three years ago it was less than it was six years ago. This progressive diminution in the ratio of those committed proves in the clearest manner the steady decline of insanity in our midst.

While, therefore, it cannot be said that California has a higher insanity rate than ordinary, there are certain peculiar and incidental conditions that tend to keep the rate higher than it would otherwise be. Foremost among them is our unusually large foreign born population.

It is well known that Europeans coming to this country are much more subject to mental disorder than are native born citizens. The reasons for this are various. The shock of separation and transplantation, the uprooting of old associations and habits of life, the homesickness, the inability in those who have hitherto always lived in the vicinity where they were born, to adapt themselves and find mental anchorage in new phases of existence—these are some of the explanations that have been offered. The fact was placed in a startling light by the census of 1880. It was found that while one seventh of the whole population were foreign, of the insane, not one seventh, as might have been expected, but one third, were of foreign birth. Thus it appeared, that while but 1 in every 662 of the native population was insane, the ratio among the foreign born was 1 in every 250.

Turning to our own State, we find this significant showing repeated and intensified. No State in the Union has so large a proportion of foreign born, except the neighboring State of Nevada. Over a third of the population of California, in 1880, were born outside of the United States. The number returned as insane in that year was 2,503, of whom 1,618, or *two thirds*, were of foreign nativity. That is to say, one third of our population (the foreign born) produced two thirds of our insane. Or, stated in another form, while 1 in every 646 of our native born is insane, the ratio among our foreign born is 1 in every 180. Giving these remarkable figures their weight, it will be seen that a low rate of insanity in our State would, under present circumstances, be akin to a miracle.

Another point closely affecting our insanity statistics may be found in the wide scope formerly embraced in the peopling of this asylum. Founded in 1850, it was for many years the only receptacle for the insane on the Pacific Slope. It was, in fact, the entrepot for the whole region west of the Rocky Mountains. In the absence of other places for their reception, the insane of the Territories north and east of us, from Idaho to Mexico, naturally gravitated to Stockton, where they are to be found, many of them, to this day. They help to swell the large class of chronic insane who have accumulated in our wards, and who, carried on our books from year to year, contribute toward giving a wrong impression as to the prevalence of acute insanity in the State. For, as I have remarked above, it is not the sum total of the cases of insanity that indicates the amount of brain disorder among a people. The total number cared for may be high, and at the same time the number of new cases actually occurring may be comparatively small. This asylum has, from an early day, carried along on its reports a large contingent, drawn from all quarters, of chronic incurable dements, of imbeciles, dotards, idiots, drunkards, simpletons, fools; a class, in fact, of harmless defectives, usually found in poorhouses elsewhere. In the absence of county charitable institutions it was necessary to send them here; there was no other place for them; but by classing them as insane an error has been fostered, and an aspersion cast upon our people. In other States a large proportion of them would have been relegated to almshouses, and would not figure in the insanity statistics at all.

There is no institution specially for the reception of idiots in the State. If an idiot becomes intractable or dangerous at home, what shall be done with him? There is no alternative. Public safety demands that he be sent to the asylum and taken care of. The result is that a large number of our idiots are included under the head of insane, and another source of error fallen into.

This can be demonstrated at a glance. At the last Federal census, the tables of insanity and those of idiocy were kept scrupulously distinct. Thus Iowa returns 2,544 insane, and 2,314 idiots, the number being almost equal; yet at the same time California returns 2,503 insane, and only 507 idiots. In other words, Iowa has proportionately four times as many idiots as we have. Again, in Ohio we find 1 idiot to every 495 inhabitants, and in Maine 1 idiot to every 500 inhabitants, while in California there is but 1 idiot to every 1,700 inhabitants. Plainly there is something wrong in this. It is hardly necessary to say that the people of Ohio or Maine or Iowa do not produce four idiots to our one. The discrepancy arises from the fact that in California our idiots are for the most part confined in the asylums, and are counted in with our insane, while in Maine and Ohio they are not.

An idiot, according to the classification of the census compilers, is one whose mental defect dated from birth or soon after. Under this head enough could be segregrated from among our inmates to-morrow to fill a good sized home for idiots. A fair estimate would place the number in the State at considerably over a thousand. It is hard to see why they are not as much entitled to the humanitarian care of the State as are those whose mental derangement began later in life. To place them in an asylum is the reverse of humanitarian. To associate idiots with lunatics is to do them grievous and irremediable wrong, inasmuch as they learn by imitation solely, and copy after those around them. With early methodical training it is astonishing how much can be done to improve these poor creatures, and to develop the fragments of intelligence in their brains. Under skilled teachers they learn to speak, dress themselves, tell the time on the clock, read, write, sew, and work at trades. I cannot conceive of a more sacred public duty than the proper maintenance and training of these afflicted children, and rescuing them from leading the life of a brute. Nor can anything be less in accordance with the enlightenment of the age than the omittance of this duty.

Other considerations could be adduced to show that the amount of insanity in the State, when properly looked at, is in nowise above the normal. It would be strange, indeed, if our State, in the vigor of its youth, should manifest such evidence of physical and social degeneracy as would be implied by a general and increasing tendency to mind disorder. For here the struggle for existence is not yet so intense, and, although poverty is always with us, its tooth is not so sharp, as in older and more densely populated communities. This, to some extent, eliminates from among us those causes of insanity that spring from abject destitution and squalor, such as overcrowding, bad hygiene, and prolonged semi-starvation. Whether these fortuitous, and, perhaps, temporary advantages are counterbalanced by other conditions, it will not repay us here to inquire. Enough has been said, it is hoped, to remove the erroneous impression which prevails in some quarters as to the spread of insanity among us. A closer scrutiny of the subject will show that the real number afflicted is not excessive, and that Californians are not more prone to insanity than their neighbors.

INTEMPERANCE AND INSANITY.

Insanity is, to a large extent, a preventable malady. It comes from an ignoring of the laws of health and sobriety. Without entering upon an enumeration of the many causes of insanity, I shall make a brief reference to one of the most prominent factors in the question—intemperance. All my observation goes to strengthen the belief that there is no greater mind-destroyer than this.

It is in the second generation that the evil works its most harm. One half the insane—perhaps more—owe their derangement to hereditary influence, inheriting an ancestral taint or predisposition. But this hereditary taint—how had it its origin? Where the family history can be searched into, the starting point will often be found in a drunken progenitor. The damaging effects of the excessive use of alcohol upon the brain are more often manifested in the offspring than in the drinker himself. He may manage to keep out of the asylum, and even maintain a respectable place in society, but his children will often find it hard to do so. They inherit qualities that unfit them for the struggle for existence, and go down under the strain. The families of intemperate parents furnish the recruiting ground for insane asylums. These unfortunate children, if not idiots or epileptics, are liable to grow up with querulous, explosive tempers, with feeble powers of self-guidance, weak in temptation, unstable, self-indulgent, vicious, hysterical. They form the bulk of what are known as the defective classes.

Absinthe drinking is not, I believe, on the increase, but instances are not uncommon in asylum reports where it has proved the swift engine of insanity and death. The following typical case came under my notice last summer. A young man, in the midst of a promising career, acquired a taste for absinthe, taking large quantities daily. A change soon took place. His habits became sluggish and dull, his appearance besotted, his face assuming a dusky red hue. He lost the faculty of attention and continuity of thought, and passed hours seated silent with an unlighted pipe in his mouth. The stupor increased, alternating with sudden gusts of passion, in one of which he seized a knife and wounded a devoted friend. Slight convulsions occurred at times. At the asylum he refused food, became emaciated, imbecile, and aphasic, and soon after died of exhaustion, within a year of the first appearance of mental disorder.

Absinthe is a mixture of the essence of wormwood, sweet flag, anise-seed, and alcohol. It is almost invariably adulterated with sulphate of copper, which is added to give it the required greenish tint, as well as to afford a slight causticity, which to depraved tastes is considered the right thing. Its action on the nervous system is most deadly, producing epileptiform convulsions, marasmus, and dementia. In the words of Dr. Richardson, a more consummate devil of destruction could not be concocted by the finest skill of science devoted to the worst of purposes.

INSANE CONVICTS.

Allusion has heretofore been made to the want of a proper hospital, connected with one of our State prisons, for the reception of the convict insane. As the law stands, the asylums must receive convicts who become insane in prison, as well as criminals who are pronounced insane by the Courts. There are some fifteen convicts now in our custody, some of them serving long sentences for atrocious crimes. Several are under life sentence for murder. As a rule they retain, though insane, their cunning and dangerous propensities, rendering it unsafe as well as improper to associate them with our patients. This matter is mentioned in the earnest hope that some safer and more appropriate place will be provided for them by legislative action.

THE NEW ASYLUM BUILDING.

As what is now the principal asylum building has been completed since the issuance of the last biennial report, a brief description will be in place. It consists of a north division or wing, a central or administrative block, and a south wing. The south wing was built in 1883, the remaining portions were finished and occupied early in 1885. The several divisions are so arranged that, while the unity of design is preserved, an abundance of sunlight and air is secured to every portion.

The building is of brick, with sandstone facings. While it is unpretentious in design and free from superfluous ornamentation, there is nothing prison-like in its appearance. On the contrary, it is cheerful-looking, its outlines strikingly graceful. It may be doubted whether there is any State building, outside of the Capitol, that exceeds it in beauty and symmetry, or which in general effect leaves a more pleasing impression on the beholder.

In internal arrangement it presents a successful embodiment of the most approved features of asylum construction. Special facilities have been provided for the careful classification of patients—that most important prerequisite to proper treatment. If the diseased mind responds to its environment, and we know such to be the case, the change from the low, dismal, forbidding premises the patients formerly inhabited, to these spacious, well-appointed rooms and dormitories, has in itself been a curative agent to an extent impossible to realize.

But if the building itself gratifies to the full every feeling of State pride in our public edifices, the fact of its economical construction and modest cost constitutes a further claim to admiration. As an instance of the integrity that characterized the whole work, it may be mentioned that the amount paid for the construction of the south division, including all extra work, was exactly twenty-six dollars more than the original estimate of the cost, filed by the architect in the Secretary of State's office, with the plans, seven months before the first brick was laid. Their estimate was $72,129; the actual cost of construction, $72,155.

The total cost of the whole structure was $224,000. As it has a capacity, without crowding, of 530 inmates, this places the per capita cost at $425, a figure so remarkably low that very few asylums in the country can approach it.

The new asylum building at Stockton stands a monument of faithful management and honest workmanship. To every citizen who views it and knows its history, the verdict will suggest itself: "A good work, well done."

IMPROVEMENTS.

The improvements carried forward during the past two years, under your direction, have been of a permanent and necessary character. By means of the appropriation generously granted for that purpose by the last Legislature, the old asylum building, erected chiefly in 1853, has undergone an extensive and thorough renovation. The old and worn out floors have been replaced by new ones. The brickwork has been everywhere repaired and pointed. The steeple, which had become decayed and insecure, has been renewed within and without. New bath-tubs, sinks, urinals, and water-closets, of the most approved pattern, have been supplied. The building has also been painted. The Harvey system of hot water heating has been introduced throughout the whole structure, replacing the old-time stove fenced around with wire screens, and lessening to a considerable degree the danger of conflagration. The original asylum building, thus repaired and put into shape, may be considered almost as good, as far as prospective durability is concerned, as when it was first put up.

The old disused kitchen, by being raised, reconstructed, and enlarged, has been converted into a spacious associated dining-room, where upwards of four hundred of the quieter class of patients are fed simultaneously three times a day. The plan has proved a gratifying success. The serving of the meals is characterized by order, regularity, convenience of supervision, and facility and economy of labor. The favorable working of so large an associated dining-hall affords an emphatic indorsement of the principle as adapted to patients of the milder type, and is a tribute to the wisdom and foresight of its promoters.

The new dairy barn, capable of accommodating seventy cows, was completed in the early part of the present year. It is a substantial structure, with concrete floors and every adaptation for the convenient operation of this important adjunct to our asylum.

For the use of the female department, and adjacent thereto, a commodious and substantial brick laundry building has been erected. It consists of a washing room and an ironing room. In the latter thirty patients can be employed at once. A drying room occupies the upper half-story.

Three large exercise-yards on the north, east, and south sides, respectively, of the female department, have been constructed for the recreation of the women patients.

The present year has witnessed the disappearance of a landmark—the two-story wooden structure known as the Cottage Ward. Erected in 1869, to serve what was supposed would be a temporary purpose, it had continued in use until at length its demolition became imperative, owing to decay and insecurity. Although by its loss our already repleted wards are still further added to, a general feeling of relief is experienced at the removal of what has long been held to be not only a building unfit for further habitation, but a dangerous fire-trap.

The grading and graveling of the thoroughfares and walks, where necessary, has been pushed forward during the dry season.

An eight-foot wooden sidewalk for public use has been placed in front of the asylum property on California Street.

This account of improvements would be incomplete without mention being made of the valuable work that has been done during the summer in hardening and preserving the floors of the main building. Under the restless tread of the patients the wear and tear of the flooring proceeds at a surprisingly rapid rate, and it was seen that something should be done to arrest it as far as possible. After properly preparing the surface and filling the joints and interstices, the floors were thoroughly oiled and then polished. The result is altogether satisfactory. The work was done by the attendants of the respective wards.

DEATH OF DR. BROWNE.

It is proper that some record be made in this report of the removal by death of the late Superintendent, W. T. Browne, who for the past eleven years has been identified with the treatment of mental diseases on this coast, and tribute paid to his worth. Dr. Browne was of Virginian birth and ancestry. He came to California in an early day, and practiced his profession, with skill and success, first at Sonora, Tuolumne County, and afterwards in the City of Stockton. He was, in 1875, appointed Assistant Physician of this asylum, and on the retirement of Dr. G. A. Shurtleff, in 1883, from the Superintendency, Dr. Browne succeeded to that office, and held it up to the time of his death. He had been a great sufferer for many years from disease of the heart, probably fatty degeneration, and, although his death was terribly sudden, it was in nowise unexpected by those who knew him best.

Dr. Browne was eminently fitted by nature for a commanding position among his fellow men. He was a man of attractive presence, of great energy and force of character, of undoubted administrative ability, of generous and benevolent disposition, and of cordial, sympathetic nature. He devoted himself, body and mind, to the amelioration of the people under his charge, with an untiring earnestness which doubtless hastened the fatal end. The career of this able and zealous servant of the State was brought abruptly to a close February 20, 1886, at the house of a friend whom he was visiting in San Francisco.

WORKSHOPS.

Something should be said as to the need of workshops for the employment of patients. The importance, both mental and physical, of some properly adapted form of occupation, as a means of cure, and the evil of the opposite condition of utter idleness, are taught me by daily observation. I am frequently implored by patients to give them something to do, no matter what. Now, farm work is, as a general thing, the most healthful and beneficial of all employments, but it is by no means applicable to all classes of patients who are willing to work. Many are not to be trusted with farming tools; many have never done farm work, and find it extremely distasteful. Moreover, where there is a tendency to brain congestion or irritation, the exposure to the sun and the stooping position are absolutely injurious. But if some light indoor work were provided, mattress making for instance, many a patient would find therein an outlet for morbid nervous energy which now spends its force within. Three fourths of our inmates belong to the middle and lower classes, to whom some form of manual labor has been the custom of their lives.

MORE MEDICAL HELP.

One of the most pressing needs of the asylum is an increase in the medical staff. Although the number of our patients has steadily increased until it is now in the neighborhood of 1,500, the number of physicians has remained where it was sixteen years ago. This want has long been felt, and has been the subject of anxious solicitude on the part of my predecessors. The present medical staff, consisting of three physicians, is inadequate to attend to the wants of this immense body of patients as they should be attended to. As will be seen from the accompanying table, the condition of things is without parallel in the country. It may be said that a disproportionately large number of our patients are of the chronic or stationary class, but this has little bearing on the question. The chronic insane require a large share of medical attention, for they are especially prone to bodily ailments and irregularities. The Willard Asylum of New York contains this class of patients exclusively, and there the resident physicians number 1 to every 225 inmates. The prospective opening of the California Hospital for the Chronic Insane, near San José, will, to a certain extent, give our crowded wards long looked for relief, but were three or four hundred of our stationary cases drafted off to that institution to-morrow, the call for a more effective medical corps would be as imperative as ever. The asylum of to-day must be something more than a mere receptacle for the insane; its functions are curative as well as custodial. When an insane person is placed in our charge, his kindred have a right to expect that he will receive from the physicians a share of individual attention; that a certain amount of special study will be devoted to his case; for it is an axiom that no two cases are alike. But, with our present *personnel*, to apply this rule in every instance and fully, is an actual physical impossibility. I hope this matter will receive legislative attention, and that the effective power of the asylum will be augmented by the appointment of an additional Assistant Physician.

The following table will give some idea of the number of resident physicians in other asylums:

ASYLUM AT—	Patients.	Physicians.
Willard, N. Y.	1,836	8
Indianapolis, Ind.	1,388	6
Washington, D. C.	1,221	8
Middletown, Conn.	1,019	6
Worcester, Mass.	800	6
Norristown, Pa.	622	6
Columbus, O.	889	5
Morris Plains, N. J.	826	5
Danvers, Mass.	742	5
Taunton, Mass.	656	5
Utica, N. Y.	614	5
Jacksonville, Ill.	633	4
Elgin, Ill.	520	4
Cleveland, O.	634	4
Athens, O.	608	4
Dixmont, Pa.	516	4
Northampton, Mass.	476	4
Harrisburg, Pa.	400	3
Buffalo, N. Y.	329	3
Milwaukee, Wis.	320	3
St. Joseph, Mo.	276	3
Stockton, Cal.	1,486	3

A deadhouse or morgue is urgently required for the proper reception of the dead. The place at present used for that purpose is a small frame room or shed adjoining the carpenter shop. A brick building of three rooms, with concrete floors, would give all the facilities needful for the decent and respectful temporary disposition of the dead.

I would recommend that the Assistant Physicians of this institution reside on the asylum grounds, and trust you will deem it expedient to advise the building of residences for that purpose.

A house is also required for the Supervisor, who is now occupying quarters in the building that are greatly needed for the accommodation of patients.

The efficient work of the corps of attendants, both male and female, deserves a word of recognition. I fully realize how much the successful working of an asylum depends on the character and fidelity of the attendants, and take this opportunity of expressing my appreciation of their services. While all may not possess that special genius for ministration which is often an inborn gift, yet I have found diffused among them a feeling of pride in the advancement of their patients, in the appearance of their wards, and in the performance of their sometimes laborious and trying duties. In this, as in everything else, unless a man likes what he is doing, and is in earnest about it, he cannot succeed. The recovery of a patient not unfrequently rests more with the attendant than with the physician. An individual suffering from acute mania, for instance: whether he shall recover, or drift into chronic insanity, may depend largely upon the nature of the influences brought to bear on him on emerging from the attack, and subsequently. It is here that the qualities that mark the good attendant are called into play. There, and indeed under all circumstances, he shows the ready tact, the cheerful demeanor, the calm self-control, and, no matter what the provocation, the same infinite fund of patience and compassion.

Of the attendants now on duty no less than thirty-five have held their positions over ten years.

The usual number of social dances in the assembly hall have been given to the patients during the cooler months. We are especially indebted to the ladies composing the Cecilia Choral, of Stockton, who, under the leadership of Mrs. E. Oullahan, gave the inmates an interesting and entertaining concert last Spring.

The proprietors of the following journals have kindly and thoughtfully supplied the patients with copies of their papers gratuitously: The Stockton Independent (three copies), the Stockton Mail, the San Francisco Examiner, the Abend Post, the Wasp, the Voce del Populo, the Monitor, the Commercial Record, the Sacramento Bee, the Sacramento Record-Union, the San José Herald, the Calaveras Prospect, the Hartford Young People and Young Readers. Books and magazines have also been liberally contributed by Mr. L. M. Cutting, Mr. M. Baldwin, Mr. H. W. Taylor, and others.

To my associates on the medical staff, Dr. Langdon, and Dr. Washington, I wish to convey my appreciation of their earnest coöperation in all measures pertaining to the progress of the institution, and their unwearying effort towards the well being and improvement of the patients. Commendation is also due to the Matron, the Steward, the Supervisor, and other officers and employés, for the faithful and harmonious manner in which their duties have been performed.

Finally, gentlemen, I take occasion to express my deep sense of the confidence you have reposed in me, in placing this great charge in my hands. Permit me to hope that I may always enjoy the friendly support and uniform courtesy now so freely bestowed on me by each member of the Board.

W. H. MAYS, Superintendent.

STATISTICAL TABLES ACCOMPANYING THE MEDICAL SUPERINTENDENT'S REPORT.

MOVEMENT OF PATIENTS.

	1884–5.			1885–6.		
	Males.	Females.	Total.	Males.	Females.	Total.
Number of patients at beginning of fiscal year	872	343	1,215	993	386	1,379
Admitted during year	259	82	341	374	130	504
Whole number under treatment	1,131	425	1,556	1,367	516	1,883
Discharged recovered	48	12	60	153	48	201
Discharged improved	7	6	13	20	13	33
Discharged unimproved	3	3	6	8	4	12
Died	69	18	87	96	39	135
Escaped	11	--------	11	15	1	16
Total discharged, died, and escaped	138	39	177	292	105	397
Number remaining at close of fiscal year	993	386	1,379	1,075	411	1,486

TABLE A.

Counties from which Patients were Admitted.

Counties.	1884–5.			1885–6.		
	Males.	Females.	Total.	Males.	Females.	Total.
Alameda	21	4	25	26	28	54
Alpine	--------	--------	--------	2	--------	2
Amador	3	3	6	4	1	5
Butte	7	--------	7	9	2	11
Calaveras	4	1	5	2	2	4
Colusa	--------	--------	--------	2	1	3
Contra Costa	5	--------	5	7	--------	7
Del Norte	--------	--------	--------	1	--------	1
El Dorado	3	1	4	5	2	7
Fresno	8	--------	8	14	1	15
Inyo	1	--------	1	5	--------	5
Kern	7	1	8	8	--------	8
Los Angeles	38	8	46	22	10	32
Marin	2	1	3	2	1	3
Mariposa	1	--------	1	2	--------	2
Merced	10	2	12	7	1	8
Mono	--------	--------	--------	1	--------	1
Monterey	1	--------	1	10	5	15
Nevada	7	3	10	9	2	11
Placer	7	4	11	12	5	17
Plumas	--------	--------	--------	2	1	3
Carried forward	125	28	153	152	62	214

Table A—Continued.

Counties.	1884–5.			1885–6.		
	Males.	Females.	Total.	Males.	Females.	Total.
Brought forward	125	28	153	152	62	214
Sacramento	15	6	21	14	7	21
San Bernardino	6	2	8	5	1	6
San Diego				1		1
San Francisco	30	17	47	118	35	153
San Joaquin	26	11	37	37	14	51
San Luis Obispo	1		1			
Santa Clara	12	4	16	11	4	15
San Mateo	1		1			
Santa Cruz	5	2	7			
Shasta	2		2	4	1	5
Sierra	5		5	4		4
Siskiyou	4	1	5	2		2
Solano	3		3	1		1
Stanislaus	6	3	9	10		10
Sutter		2	2	1	1	2
Tehama	3		3			
Trinity		1	1			
Tulare	4	3	7	7	1	8
Tuolumne	4	1	5	3	2	5
Yolo	3		3	2	1	3
Yuba		1	1	2	1	3
State Prison	4		4			
Totals	259	82	341	374	130	504

TABLE B.

Nativity of those Admitted.

Nativity.	1884–5.			1885–6.		
	Males.	Females.	Total.	Males.	Females.	Total.
United States.						
Arkansas	1		1	1		1
California	22	8	30	25	23	48
Connecticut	1		1			
District Columbia					1	1
Georgia					1	1
Idaho				1		1
Illinois	4	2	6	4	5	9
Indiana	4	1	5	2	1	3
Iowa	1	2	3	1	1	2
Kansas		1	1	2		2
Kentucky	4	2	6	4	1	5
Louisiana				1	2	3
Maine	7		7	7	4	11
Maryland	1	1	2	4		4
Massachusetts	5	3	8	9	2	11
Michigan	2		2	2	2	4
Minnesota		2	2	1		1
Mississippi				1		1
Missouri	6	1	7	6	3	9
New Hampshire	1		1			
New York	15	5	20	18	8	26
Nebraska					1	1
North Carolina	1		1		1	1
New Jersey	3		3	1		1
Ohio	5	1	6	11	2	13
Carried forward	83	29	112	101	57	159

TABLE B—Continued.

NATIVITY.	1884-5.			1885-6.		
	Males.	Females.	Total.	Males.	Females.	Total.
Brought forward	83	29	112	101	57	159
Oregon	1		1			
Pennsylvania	11		11	6	3	9
Rhode Island				1		1
South Carolina	1		1			
Tennessee	5		5	3	1	4
Texas	1		1		1	1
Utah				1		1
Vermont	1		1	1		1
Virginia	3	2	5	5	1	6
West Virginia	1		1	1		1
Wisconsin		4	4	4	2	6
United States	5		5	7	2	9
Totals	112	35	147	131	67	198
Foreign Countries.						
Azores	3		3	5		5
Australia		1	1			
Belgium					1	1
Bulgaria				1		1
Canada	10	1	11	11	3	14
British India					1	1
Chili	2		2	1	1	2
China	20	1	21	33	2	35
Denmark	3	2	5	7	2	9
England	10	5	15	19	4	23
Finland				1		1
France	5	1	6	13	2	15
Germany	30	6	36	35	13	48
Greece				1		1
Holland	2		2	3		3
Ireland	33	25	58	53	22	75
Italy	4		4	12	2	14
Japan				2		2
Mexico	4	2	6	2	3	5
New Zealand				1		1
Norway	1		1	1	2	3
Portugal	1		1	6		6
Poland					1	1
Russia					2	2
South Sea Islands				1		1
Scotland	3	1	4	6		6
Sweden	5		5	8	3	11
Switzerland	2	2	4	7		7
Spain	1		1			
Unknown	9		9	11	1	12
Totals	147	47	194	243	63	306

RECAPITULATION.

NATIVITY.	1884-5.			1885-6.		
	Males.	Females.	Total.	Males.	Females.	Total.
United States	112	35	147	131	67	198
Foreign countries	138	47	185	232	62	294
Unknown	9		9	11	1	12
Totals	259	82	341	374	130	504

TABLE C.

Age when Insanity first Appeared.

Ages.	1884–5.			1885–6.		
	Males.	Females.	Total.	Males.	Females.	Total.
Under 15 years	2	2	4	3	3	6
Between 15 and 20 years	13	3	16	16	12	28
Between 20 and 25 years	27	11	38	40	11	51
Between 25 and 30 years	32	9	41	36	18	54
Between 30 and 35 years	33	17	50	50	14	64
Between 35 and 40 years	35	12	47	39	9	48
Between 40 and 45 years	28	11	39	36	18	54
Between 45 and 50 years	21	5	26	35	9	44
Between 50 and 55 years	17	4	21	26	2	28
Between 55 and 60 years	12	2	14	8	4	12
Between 60 and 65 years	13	2	15	13		13
Between 65 and 70 years	6	2	8	3	3	6
Between 70 and 75 years	6		6	3		3
Between 75 and 80 years				2	1	3
Unknown	14	2	16	64	26	90
Totals	259	82	341	374	130	504

TABLE D.

Age at Time of Admission.

Ages.	1884–5.			1885–6.		
	Males.	Females.	Total.	Males.	Females.	Total.
Under 10 years	1		1			
Between 10 and 15 years				1	1	2
Between 15 and 20 years	8	2	10	11	8	19
Between 20 and 25 years	19	7	26	25	13	38
Between 25 and 30 years	35	10	45	44	18	62
Between 30 and 35 years	33	8	41	57	14	71
Between 35 and 40 years	26	17	43	52	19	71
Between 40 and 45 years	33	12	45	47	13	60
Between 45 and 50 years	27	8	35	43	17	60
Between 50 and 55 years	20	6	26	30	11	41
Between 55 and 60 years	12	5	17	22	4	26
Between 60 and 65 years	15	3	18	16	5	21
Between 65 and 70 years	8	1	9	11	2	13
Between 70 and 75 years	7	1	8	5	3	8
Between 75 and 80 years	1		1			
Between 80 and 85 years				2	1	3
Between 90 and 95 years				1		1
Unknown	14	2	16	7	1	8
Totals	259	82	341	374	130	504

TABLE E.

Cause of Insanity, as stated in Commitments.

Cause.	1884–5.			1885–6.		
	Males.	Females.	Total.	Males.	Females.	Total.
Intemperance	22	6	28	40	2	42
Intemperance and business troubles	4		4	3		3
Intemperance and head injury	5		5		1	1
Intemperance and privation	4		4	3		3
Epilepsy	7	3	10	13	5	18
Syphilis	4		4	5		5
Masturbation	27	1	28	42		42
Domestic trouble and grief	7	9	16	5	13	18
Heredity	9	8	17	2		2
Business troubles	10		10	17	4	21
Loss of property	2	1	3			
Injury to head	9		9	15	1	16
Exposure to heat and sunstroke	3		3			
Organic disease of brain	8	1	9	8	2	10
Spinal disease		1	1			
Spermatorrhea	1		1			
Uterine trouble		3	3		4	4
Gunshot wound	1		1	1		1
Loss of wife	1		1			
Constipation	1		1			
Puerperal state		2	2		7	7
Ill health	2	3	5		2	2
Bereavement		2	2	1	2	3
Overwork	2	2	4	5	1	6
Dread of insanity returning	1		1			
Meningitis	1		1		1	1
Spiritualism	1		1	2		2
Religious excitement	4	2	6	13	2	15
Chicken-pox	1		1			
Old age	3	1	4	2	2	4
Morphine and opium	1		1	1	1	2
Trade strike	1		1			
Menopause		1	1		11	11
Menstrual difficulties		3	3		3	3
Disappointment in love	2	3	5	2	1	3
Disease of ear	1		1		1	1
Injury from explosion	1		1			
Nervousness	1	1	2			
Theft by son		1	1			
Destitution	1		1	2	1	3
Melancholy and despondency		1	1	4	1	5
Fright				2	2	4
Nostalgia				1	2	3
Overstudy				1	2	3
Inflammation of brain					2	2
Mineral poison				2		2
Desertion					2	2
Sexual excesses				1		1
Rheumatism				1		1
Stock gambling				1		1
Typhoid fever				2		2
Measles					1	1
Attempted rape					1	1
Abortion					1	1
Infidelity				1		1
Jealousy				1		1
Unknown	110	26	136	154	38	191
Totals	259	82	341	374	130	504

TABLE F.

Classification.

CLASS.	1884–5.			1885–6.		
	Males.	Females.	Total.	Males.	Females.	Total.
Mania	185	55	240	145	40	185
Melancholia	21	16	37	49	22	71
Monomania	15	4	19	41	6	47
Chronic mania				22	26	48
Dementia	36	7	43	92	27	119
Epilepsy				13	5	18
General paralysis	2		2	12	4	16
Totals	259	82	341	374	130	504

TABLE G.

Civil Condition.

CIVIL CONDITION.	1884–5.			1885–6.		
	Males.	Females.	Total.	Males.	Females.	Total.
Married	61	52	113	77	67	144
Single	160	22	182	263	42	305
Widows		4	4		17	17
Widowers	12		12	15		15
Divorced	1		1	3	2	5
Unknown	25	4	29	16	2	18
Totals	259	82	341	374	130	504

TABLE H.

Occupations.

OCCUPATIONS.	1884–5.			1885–6.		
	Males.	Females.	Total.	Males.	Females.	Total.
Laborers	78		78	108		108
Housewives		48	48		63	63
Farmers	29		29	42		42
Miners	18		18	33		33
Domestics		12	12	1	15	16
Carpenters	10		10	11		11
Painters	9		9	4		4
Sheepherders	4		4	4		4
Sailors	4		4	2		2
Shoemakers	4		4	1		1
Clerks	3		3	10		10
Stockraisers	3		3	3		3
Gardeners	3		3	4		4
Cooks	3		3	6	2	8
Dressmakers		3	3		6	6
Physicians	2		2	1		1
Soldiers	2		2	1		1
Millers	2		2	1		1
Tinsmiths	2		2	1		1
Real estate agents	3		3	2		2
Bartenders	2		2	5		5
Hotel keepers	2		2			
Blacksmiths	2		2	2		2
Machinists	2		2	2		2
Preachers	2		2	1		1
Butchers	2		2	1		1
Bookkeepers	2		2	6		6
Civil engineers	3		3	1		1
Tailors	2		2	4		4
Hostlers	2		2	2		2
Nurses		2	2			
Waiters	1		1	5		5
Woodchoppers	1		1	6		6
Housekeepers					6	6
Harnessmakers	1		1	5		5
Printers	1		1	4		4
Teachers				1	3	4
Dairymen				3		3
Coopers				3		3
Barbers				3		3
Cabinetmakers	1		1	3		3
Musicians				2		2
Engineers	2		2	2		2
Boxmakers	1		1			
Bakers	1		1	2		2
Merchants	2		2	2		2
Lawyers				2		2
Music teachers				1	1	2
Seamstresses					2	2
Porters				1		1
Teamsters	1		1			
Peddlers	1		1	1		1
Bridge keepers	1		1			
Vagrants	3		3			
Dentists				1		1
Architects				1		1
Longshoremen				2		2
Journalists				1		1
Railroaders	1		1	2		2
Stonecutters	1		1	1		1
Surveyors	1		1			
Carried forward	221	65	286	329	98	427

TABLE H—Continued.

OCCUPATION.	1884–5.			1885–6.		
	Males.	Females.	Total.	Males.	Females.	Total.
Brought forward	221	65	286	329	98	427
Mechanics	2		2			
Moulders	1		1			
Ship carpenters	1		1	1		1
Firemen	1		1	1		1
Coachmen	2		2			
Locksmiths	1		1	1		1
Carriagemakers	2		2	2		2
Brewers	1		1	1		1
Liquor merchants	1		1			
Teachers		1	1			
Laundresses		1	1			
Cigarmakers				1		1
Fishermen				1		1
Watchmen				1		1
Laundrymen				1		1
Bricklayers				1		1
Actors				1		1
Hotel runners				1		1
Pharmacists				1		1
Lamplighters				1		1
Watchmakers				1		1
Plumbers				1		1
Photographers				1		1
School children				1	2	3
Convicts	4		4			
No occupation	8	8	16	17	25	42
Unknown	14	7	21	9	5	14
Totals	259	82	341	374	130	504

TABLE I.

Cause of Death.

CAUSE.	1884–5.			1885–6.		
	Males.	Females.	Total.	Males.	Females.	Total.
Paralysis	12	1	13	18	3	21
Consumption	9	2	11	9	9	18
Marasmus	4	3	7	12	2	14
Apoplexy	2	0	2	9	3	12
Epilepsy	7	0	7	6	6	12
Organic disease of brain	9	2	11	4	1	5
Disease of heart	1	2	3	8	1	9
Senile decay	5	2	7	6	2	8
Chronic diarrhœa	0	0	0	4	2	6
Maniacal exhaustion	3	0	3	4	1	5
Bright's disease	0	0	0	3	2	5
Congestion of lungs	0	0	0	4	0	4
Acute delirious mania	2	0	2	2	0	2
Pyemia	1	1	2	0	0	0
Cancer	1	1	2	0	0	0
All other causes	11	4	15	8	6	14
Totals	69	18	87	97	38	135

ACCOUNT OF ARTICLES CONSUMED AND ANNUAL EXPENDITURES AT THE ASYLUM.

ARTICLES.	1884–5.	1885–6.
	Value.	Value.
Flour	$9,072 80	$9,532 15
Meat	26,854 70	22,128 11
Sugar	4,154 98	3,538 35
Tea	1,567 41	1,247 70
Syrup	1,063 40	1,354 44
Potatoes	3,803 27	2,636 63
Butter	6,896 75	7,892 03
Coffee	1,921 20	1,996 85
Lard	178 05	102 30
Fish	760 35	834 60
Eggs	356 86	361 54
Beans and peas	957 31	727 53
Rice and cracked wheat	1,057 58	1,421 97
Corn meal	542 57	593 85
Fruit	701 77	447 87
Vegetables	378 03	380 74
Salt	128 70	112 93
Vinegar	114 27	131 65
Small groceries	1,283 19	1,118 87
Soap, starch, and potash	1,171 88	1,213 55
Drugs and medicines	1,694 83	2,087 50
Liquors	406 75	267 75
Tobacco	1,275 51	1,048 48
Drygoods	1,692 41	1,794 88
Clothing and hats	7,005 56	6,154 28
Shoes and leather	2,601 91	2,562 95
Blankets	1,209 20	1,174 56
Furniture and crockery	716 12	2,023 25
Hardware and tinware	975 62	1,454 28
Hay, grain, and feed	3,029 61	2,263 27
Garden seeds and tools	546 76	686 70
Lumber	1,404 73	1,875 09
Building materials and repairs	2,129 75	3,748 92
Paints, oils, and glass	324 53	646 20
Brooms and brushes	345 15	436 58
Books and stationery	377 66	435 50
Gas and oils	2,023 14	2,205 51
Fuel	16,626 52	13,671 21
Bedding	1,610 85	1,323 73
Castings, pipes, and iron	2,307 50	1,861 25
Discharged patients	153 90	590 75
Returned escapes	114 55	84 25
Payroll	79,382 51	88,028 26
Miscellaneous	1,553 52	1,400 64
Totals	$192,473 66	$196,610 45

COST OF THE DIFFERENT DEPARTMENTS.

DEPARTMENTS.	1884–5.	1885–6.
	Cost.	Cost.
Male kitchen and dining-room	$37,410 79	$34,943 03
Male department	53,670 87	57,431 89
Female kitchen and dining-room	20,248 13	18,305 96
Female department	32,560 03	32,550 20
Bakery	10,186 52	10,609 69
Laundries and engine houses	7,321 40	7,236 13
Farm, garden, and dairy	7,275 83	8,549 43
Repairs and improvements	3,859 01	6,270 21
General mechanics' shop	582 95	699 02
Drug store	2,023 13	2,374 69
Office	298 29	358 25
Advertising for supplies		300 00
Medical Superintendent	5,261 54	4,893 05
Assistant Physician	4,300 02	4,300 00
Assistant Physician	4,300 02	4,230 53
Miscellaneous	3,175 13	3,558 37
Totals	$192,473 66	$196,610 45

EXTRAORDINARY EXPENSES FOR THE YEAR ENDING JULY 1, 1885.

	Amount.
Expenses incident to opening new building	$317 00
Furniture and repairs, Superintendent's residence	776 00
Labor, teams, etc., on sewer and drainage	1,602 22
Repairs to female department	932 27
Total	$3,632 49

RECAPITULATION.

Total Cost of Conducting the Asylum During the Biennial Period.

	1884–5.	1885–6.
	Cost.	Cost.
Current expenses for the year	$188,614 65	$190,340 24
Repairs and improvements	3,859 01	6,270 21
Extraordinary expenses	3,632 49	
Totals	$196,106 15	$196,610 45

AVERAGES.

MONTHS.	Average No. of Patients Daily.	Average Daily Expenses.	Average Cost per Capita per Day (cents).	Average Cost per Capita per Month.
1884—July	1,221	$506 18	41.4	$12 85
August	1,235	466 60	37.8	11 71
September	1,242	467 16	37.6	11 28
October	1,252	564 71	45.1	13 98
November	1,255	594 14	47.3	14 20
December	1,269	532 28	41.9	13 00
1885—January	1,280	595 69	46.5	14 42
February	1,306	590 46	45.2	12 66
March	1,323	536 96	40.6	12 58
April	1,341	519 00	38.7	11 61
May	1,353	473 80	35.0	10 84
June	1,372	486 46	35.5	10 64
Yearly average for 1884–5	1,287	$527 33	41.0	$12 48
1885—July	1,391	$498 94	35.9	$11 13
August	1,414	503 45	35.6	11 04
September	1,434	507 20	35.4	10 62
October	1,435	518 15	36.1	11 19
November	1,452	576 83	39.7	11 91
December	1,461	547 43	37.5	11 62
1886—January	1,462	540 38	37.0	11 47
February	1,475	548 41	37.2	10 42
March	1,476	570 19	38.6	11 97
April	1,455	563 30	39.0	11 70
May	1,462	561 43	38.4	11 90
June	1,474	527 91	35.8	10 75
Yearly average for 1885–6	1,449	$538 66	37.2	$11 31

PRODUCTS OF THE FARM, GARDEN, AND DAIRY.

ARTICLES.	1884–5.	1885–6.
	Amount.	Amount.
Beets, pounds	14,115	13,565
Tomatoes, pounds	28,336	37,521
Turnips and carrots, pounds	15,725	27,796
String beans and peas, pounds	8,847	6,409
Squash and pumpkins, pounds	9,451	27,466
Egg plant and radishes, pounds	479	709
Green corn and cucumbers, dozens	2,969	4,514
Celery, dozens	--------	40
Cabbage, pounds	35,149	49,072
Onions, pounds	25,923	12,421
Lettuce and kale, pounds	2,113	1,168
Peppers and okra, pounds	4,638	4,348
Apples, pears, and apricots, pounds	2,749	19,746
Grapes, pounds	21,590	16,512
Pork, pounds	8,354	9,713
Beef, pounds	1,166	730
Milk, gallons	29,352	32,734
Eggs, dozens	396	472
Turkeys and chickens	93	126
Wood, cords	6	28
Hay and fodder, tons	26	60
Alfalfa, green, tons	10	300

LIVE STOCK SOLD.

STOCK.	1884–5.		1885–6.	
	Number Sold.	Amount Received.	Number Sold.	Amount Received.
Hogs and pigs	80	$790 45	81	$497 90
Calves	40	369 50	27	184 00
Sick cows	2	50 00	2	30 00
Bull calf	1	50 00		
Total		$1,259 95		$711 90

LIVE STOCK ON HAND.

LIVE STOCK.	JULY 1, 1885.	JULY 1, 1886.
	Number.	Number.
Hogs	182	260
Milch cows	43	51
Yearlings	6	7
Young calves	6	4
Bulls	1	2

The following table shows the movement of patients in the asylum from its foundation to July 1, 1886:

GENERAL STATISTICS.

Number of Admissions, Recoveries, Deaths, etc.

YEAR.	Admissions	Recoveries	Discharged Uncured	Deaths	Escaped	Number Resident at the Close of each Year	Increase	Decrease	Whole Number Treated	Per Cent of Recoveries to Admissions	Per Cent of Deaths on the Number Treated
1851	13	6	------	1	------	6	6	------	13	46.15	7.69
1852	124	50	6	10	------	62	56	------	130	40.32	7.69
1853	160	108	8	12	------	103	41	------	222	67.50	5.40
1854	202	150	13	21	------	134	31	------	305	74.00	6.89
1855	214	168	16	18	------	162	28	------	348	78.50	5.20
1856	210	126	15	23	------	172	10	------	382	60.00	6.02
1857	206	81	17	28	------	188	16	------	378	39.32	7.33
1858	244	112	20	32	------	273	85	------	432	45.90	7.41
1859	276	112	22	49	------	370	97	------	549	40.58	8.91
1860	248	123	21	54	10	417	47	------	618	49.59	8.73
1861	198	154	34	33	14	416	------	1	615	77.77	5.36
1862	301	127	14	65	12	499	83	------	717	42.19	9.06
1863	252	105	17	47	12	583	84	------	751	41.67	6.26
1864	219	101	25	82	12	581	------	2	802	46.12	10.22
1865	268	93	15	82	27	632	51	------	849	34.70	9.66
1866	279	131	13	62	12	693	61	------	911	46.95	6.81
1867	313	125	14	89	9	769	76	------	1,006	40.00	8.80
1868	387	146	13	134	10	853	84	------	1,156	37.73	11.59
1869	482	225	16	159	15	920	67	------	1,335	46.68	11.91
1870	562	221	36	156	22	1,047	127	------	1,482	39.32	10.55
1871	523	245	36	176	23	1,090	43	------	1,570	46.84	11.21
1872	506	240	33	188	12	1,123	33	------	1,596	47.43	11.78
1873	401	185	19	152	12	1,156	33	------	1,524	46.13	9.97
1874	524	209	46	178	23	1,224	68	------	1,680	39.88	10.59
1875	615	259	71	181	26	1,302	78	------	1,839	41.95	9.84
1876	414	252	60	172	18	1,214	------	88	1,716	61.26	10.03
1877	201	83	30	100	7	1,195	------	19	1,415	41.29	7.06
1878	219	80	19	106	7	1,202	7	------	1,414	36.53	7.49
1879	106	58	16	100	7	1,127	------	75	1,308	54.71	7.64
1880	114	40	9	72	4	1,116	------	11	1,241	35.08	5.80
1881	149	54	16	92	1	1,102	------	14	1,265	36.24	7.19
1882	179	71	11	93	11	1,095	------	7	1,281	39.67	7.27
1883	258	68	10	86	5	1,184	89	------	1,353	26.35	6.35
1884	264	113	22	87	11	1,215	31	------	1,448	42.80	6.01
1885	341	60	19	87	11	1,379	164	------	1,556	17.60	5.59
1886	504	201	45	135	16	1,486	107	------	1,883	39.86	7.17
Totals	10,476	4,682	797	3,162	349	------	1,703	217	------	------	------

APPENDIX I.

Laws of the State Concerning the Admission of Patients into the State Insane Asylum at Stockton.

1. No insane person, non-resident of this State, must be received into the asylum, unless he became insane within this State. (This prohibition shall not prevent the commitment to and temporary care in said asylum of persons stricken with insanity while traveling or temporarily sojourning in the State, or sailors attacked with insanity upon the high seas and first arriving thereafter in some port within this State.)

2. Whenever it appears by affidavit to the satisfaction of a Judge of the Superior Court of any county, that any person within the county is so far disordered in his mind as to endanger health, person, or property, he shall cause such person to be brought before him, and he shall summon to appear at the same time and place two or more witnesses who well knew the accused during the time of the alleged insanity, who shall testify under oath as to conversation, manners, and general conduct, upon which such said charge of insanity is based.

The Judge shall also cause to appear before him at the same time and place two physicians, who shall be regular graduates in medicine, before whom the Judge shall examine the charge.

If, after a careful hearing of the case, and a personal examination of the alleged insane person, said physicians shall certify on oath that the person examined is insane, and that the case is of a recent or curable character, or that the said insane person is of a homicidal, suicidal, or incendiary disposition, or that from any other violent symptoms the said insane person would be dangerous to his or her own life, or the lives or property of the community in which he or she may live;

And if the Judge shall be satisfied that the facts revealed in the examination establish the existence of the insanity of the person accused, and that it is of a recent or curable nature, or of a homicidal, suicidal, or incendiary character, or that from the violence of the symptoms the said insane person would be dangerous to his or her own life, or to the lives or property of others, if at large;

Then the Judge shall direct the Sheriff of the county, or some suitable person, to convey to, and place in charge of, the officers of the insane asylum of this State to which the order is directed, such insane person: and shall transmit therewith a copy of the complaint and commitment and physicians' certificate.

3. The certificate must be made in the form prescribed by, and, if they can be had, upon blanks furnished by, the medical superintendent of the asylum.

4. The person taking such insane person to the asylum shall be allowed therefor the same fees as are allowed by law to the Sheriff in such cases, to be paid in like manner.

5. The physicians attending the examination aforesaid shall be allowed, by the Board of Supervisors of the county in which the examination is made, five dollars each, unless they are otherwise paid.

6. No case of idiocy or imbecility, or simple feebleness of mind, must be maintained at, nor must any case of delirium tremens be admitted into the asylum.

7. Judges of the Superior Court of any county of this State may order the transfer of any insane person, committed from their respective counties, from one State asylum to the other, upon the joint consent of the Superintendents of each; the cost of such transfer to be paid by the guardian or friends of the patient transferred.

8. The kindred or friends of an inmate of the asylum may receive such inmate therefrom, on their giving satisfactory evidence to the Judge of the Court issuing the commitment that they, or any of them, are capable and suited to take care of, and give proper care to, such insane person, and give protection against any of his or her acts as an insane person. If, after reward, it is brought to the knowledge of the Judge, by verified statement, that the person thus removed is not cared for properly, he may order such person returned to the asylum.

9. The Judge of the Superior Court of any county in this State shall inquire into the ability of insane persons, committed by him to the asylum, to bear the actual charges and expenses for the time that such person may remain in the asylum. In case an insane person, committed to the asylum under the provisions of this Act, shall be possessed of real or personal property sufficient to pay such charges and expenses, the Judge shall appoint a guardian for such person, who shall be subject to all the provisions of the general laws of this State in relation to guardians, as far as the same are applicable.

10. When there is not sufficient money in the hands of the guardian, the Judge may order a sale of the property of such insane person, or so much thereof as may be necessary, and from the proceeds of such sale the guardian shall pay the Directors of the asylum the sum of fifteen dollars a month, quarterly in advance, for the maintenance of said insane person; and shall also pay for such clothing as the Superintendent shall, from time to time, furnish such insane person.

11. Said guardian shall give a bond, with good and sufficient sureties, approved by the Judge, for the faithful performance of the duties required of him by this Act, as long as the property of his insane ward is sufficient for the purpose.

12. If indigent insane persons have kindred of degree of husband or wife, father, mother, or children, of sufficient ability, who are otherwise liable, said kindred shall support such indigent insane person to the extent prescribed for paying patients, namely, fifteen dollars a month, payable quarterly in advance.

13. When the Physician, Warden, and Captain of the Yard of the State Prison, after an examination, are of opinion that any prisoner is insane, they must certify the fact under oath to the Governor, who may, in his discretion, order the removal of such prisoner to the insane asylum.

APPENDIX II.

Analysis of Water from Artesian Well on Asylum Grounds, Stockton, Cal. Sample furnished July, 1886, by the Superintendent.

By Geo. E. Colby, College of Agriculture, University of California.

The water is clear, and has only a very faint saline taste. Odor very faintly tainted. On evaporation the water yields a solid residue of 34.388 grains per gallon: of this amount 2.670 grains is water, with a very small amount of organic matter, which is driven off by irrigation, leaving 31.718 grains of strictly mineral matter, of which 25.536 grains was again soluble in water. The composition of these several portions was:

Soluble Part.	Grains Per Gallon.	Per Cent.
Chloride of sodium (common salt)	13.700	43.181
Carbonate of sodium	11.720	36.941
Sulphate of lime (gypsum)	.116	.344
Total soluble	25.536	80.466

Insoluble Part.	Grains Per Gallon.	Per Cent.
Silica	3.180	10.030
Carbonate of lime	1.400	4.417
Carbonate of magnesia	1.520	4.804
Peroxide of iron and alumina	.082	.276
Total insoluble	6.182	19.527

Commenting on the above, Professor E. W. Hilgard states:

I have heretofore expressed my opinion that irrigation with this water would gradually so fill the ground with alkali that a periodic washing out would be needful, but that the nature of the alkali was not especially noxious. According to Mr. Colby's analysis, it is not surprising that your vegetables should have suffered from the use of the water, and, fortunately, it is not difficult to relieve the trouble, which evidently arises from the presence of carbonate of soda. Simply give your ground a dressing of land plaster—say five hundred pounds per acre for the present—and the carbonate will be transformed into relatively inert sulphate of soda. Such dressings will have to be repeated hereafter every few years, or still better, you can put plaster into a reservoir in which the water is first collected, or make a filter-box, through which it must pass, so as to be corrected before reaching the ground. Besides this, there are some general rules to be observed in the case of land irrigated with alkali water, of which the chief feature is deep and very thorough tillage maintained through the dry season.

BIENNIAL REPORT OF THE TRUSTEES

AND THE

Tenth and Eleventh Annual Reports of the Resident Physician

OF THE

NAPA STATE ASYLUM FOR THE INSANE.

1886.

SACRAMENTO:
STATE OFFICE.........JAMES J. AYERS, SUPT. STATE PRINTING.
1886.

OFFICERS OF THE ASYLUM.

BOARD OF TRUSTEES.

BENJAMIN SHURTLEFF, President	Napa.
J. C. MARTIN	Oakland.
J. Q. BROWN	Sacramento.
G. N. CORNWALL	Napa.
W. F. HENNING	Napa.

TREASURER AND EX OFFICIO SECRETARY.

C. B. SEELEY	Napa.

RESIDENT OFFICERS.

E. T. WILKINS, M.D.	Resident Physician.
L. F. DOZIER, M.D.	Assistant Physician.
F. W. HATCH, M.D.	Assistant Physician.
J. B. STEVENS	Secretary.
J. M. PALMER	Steward.
MRS. JENNIE HAWKES	Matron.
GEORGE G. DUNN	Steward's Clerk.
JOHN HAWKES	Supervisor.
W. H. MARTIN	Druggist.
ELIZA KENNEDY	Supervisoress.

REPORT.

To his Excellency GEORGE STONEMAN, *Governor of the State of California:*

In pursuance of law, the Board of Trustees of the Napa State Asylum for the Insane respectfully submits a report of the financial and general condition of the institution for the two fiscal years ending with the thirtieth day of June, 1886.

The Board also makes such recommendations as it deems the welfare of the Asylum requires. Mindful that the State will have to dispense its funds with a liberal hand to promote the interest of the California Hospital for the Chronic Insane, and secure its speedy completion, this Board will ask the next Legislature for no appropriation for the Napa Asylum except such as the most rigid necessity demands. We ask only that provision be made for the single item of maintenance.

You will see by the Treasurer's report, herewith submitted, that the fund for the "improvement of grounds," also the fund for "fire protection," have been expended as provided by law. You will also observe that there is a balance in the Maintenance Fund, in State warrants, subject to outstanding claims, of $11,599 64. Vouchers for all expenditures are on file in the office of the Treasurer, except for the Contingent Fund, which are on file in the office of the Resident Physician.

At its last biennial session, acting under the belief that there was a deficiency in the appropriation for the Napa Asylum for the thirty-fourth fiscal year, the Legislature appropriated $6,293 22 to meet such alleged deficiency. On the twenty-first day of March, 1885, the Treasurer of this Board received from the State Controller State warrant No. 7,882, for the amount of the above appropriation. As no deficiency existed, the Treasurer, under the direction of the Board of Trustees, on the fourteenth day of April next following, returned this warrant, with the necessary explanations, to the State Controller.

CONTINGENT FUND.

The following statement shows the receipts and expenditures on account of the Contingent Fund for the two fiscal years ending June 30, 1886:

To balance in fund June 30, 1884	$7,504 26
To amount received on account of board	22,987 50
To amount received on account of Steward's sales	2,325 62
Total receipts	$32,817 38

Expenditures.

Painting materials and labor	$1,646 65
Books, papers, etc.	265 95
Hardware	173 90
Labor on waterworks	1,216 00
Fire hose	1,012 15
Carried forward	$4,314 65

Brought forward	$4,314 65	
Repairs	1,014 00	
Improvement of grounds	1,961 00	
Cartmen	1,020 00	
Blasting powder and fuse	436 92	
Freight and expressage	235 72	
Lumber	2,224 77	
Water pipe, castings, etc.	3,867 07	
Labor on calf house	172 50	
Lime, cement, and sand	93 30	
Interest	2,269 72	
Rent of telephones	100 00	
Service of stallions	150 00	
Returned to pay patients	605 00	
Sprinkler for grounds	75 25	
Pig lead	79 65	
Brick	1,087 60	
Expenses of State Engineer	20 00	
Horses	445 00	
Labor on fire protection	751 25	
Fencing	79 20	
Hose cart	133 00	
Fire grenades	286 00	
Carriage hire	24 00	
Sewer pipe	648 65	
Trees and seed	158 45	
Labor and materials on gasworks	1,329 33	
Pasturage	60 00	
Expenses to San Francisco	28 00	
Plans for infirmaries	175 00	
Plans for boilers and inspection during construction	83 00	
Rubber boots	46 00	
Covering steam heaters	234 00	
Hogs	51 00	
Insurance on boilers	100 00	
Advertising	18 50	
Expenses of Dr. Wilkins in attending meeting of Medical Superintendents	300 00	
		$24,677 53
To balance, June 30, 1886		$8,139 85

The Contingent Fund that came into existence on the first day of April, 1883, is an important factor in the administration of asylum affairs. The receipts for this fund during the two fiscal years, ending with June 30, 1886, amounted to $25,313 12, averaging a little over $1,000 per month. While it is a useful and convenient aid in the management of the finances of the institution, the Board of Trustees, mindful that they were vested with extraordinary powers, have ever sought to expend this fund with the most careful, judicious economy. The foregoing itemized account shows that there was a balance remaining in this fund, at the close of the last fiscal year, of $8,139 85.

Included with this communication, as a part thereof, is the report of the Resident Physician, Dr. E. T. Wilkins. This report is complete, interesting, and instructive upon all matters involved in the affairs of the institution. Dr. Wilkins attended the annual meeting of the Superintendents of the American institutions for the insane, recently held in Lexington, Kentucky, and while in the Eastern States he visited some of the best conducted asylums for the insane on the continent. While this report is all worthy of a careful perusal, that portion which contrasts the management of the best asylums of the East with that of the Napa Asylum will be read with striking interest.

It will be seen that the daily per capita cost for the fiscal year ending with June 30, 1885, was thirty-nine and one fifth cents; for the last fiscal year it was but thirty-seven and two fifths cents.

The number of patients in the asylum June 30, 1886, was one thousand four hundred and thirty-six.

IMPROVEMENTS.

Many needful improvements have been made during the last two years. A gasholder, with a capacity of six thousand feet, and a bench of retorts for the manufacture of gas, have been constructed, and two steam boilers of sixty-horse power each have been purchased and set in proper position. A large, convenient barn for the storage of hay and the protection of young stock has been built, besides many other minor improvements that have been made. Lake Camilla has been enlarged to a capacity of twelve million gallons; directly above this fine body of water a dam has been built, and excavations are being made for another lake, with two thirds the capacity of Lake Camilla; their united capacity being twenty million gallons.

This supply is of incalculable value for purposes of irrigation, with only a nominal expense to the State, as most of the labor used in making these improvements was performed by patients.

An electric watch-clock has been purchased and placed in the office of the Resident Physician for the use of the institution. It has one station for each of the twenty-six wards, and ten others established at suitable points in and about the asylum. This clock has been in operation about one year, and gives entire satisfaction. It is faultless in the exposure of the careless shirking night-watcher, while it is the ever vigilant sleepless monitor that never fails to score a credit mark due to the faithful.

The fire protection improvement has been brought to a most satisfactory completion. The reservoir, situated about one half a mile east from the asylum, and at an elevation of one hundred and fifty feet, has a capacity of one million gallons. This reservoir is always kept full, the water being a reserve for the extinguishment of fire alone. It is connected with the asylum by suitable iron pipes, having the necessary risers and fire hydrants with all the needful appliances. Under the direction of the Resident Physician a well disciplined efficient fire company from the officers and employés of the institution is maintained ready for duty in any emergency at the sound of the fire alarm. This is a splendid improvement, and since its completion we feel a comparative security against the merciless devastation of fire among the insane, a scourge that has no parallel in the terrible calamities that sometimes befall the pitiful victims of lunacy. Fire on shipboard, in mid-ocean, amidst the darkness of night, and the fury of storm and tempest, is scarcely more appalling to contemplate than a conflagration in an asylum among the unfortunate helpless insane.

Four hundred more fruit trees of the best varieties have been planted, making in all two thousand trees. There are also thirteen thousand grapevines. The orchards and vineyards are kept in a good state of cultivation, and already yield a large quantity of excellent fruit. In a few years all the fruit necessary for the use of the institution will be raised upon the asylum premises.

During the current and next fiscal year many important improvements and repairs will have to be made in and about the asylum and the estate connected therewith. It will be the policy of the Board, however, to involve the institution in no expense for improvements beyond the resources of the contingent fund to pay.

AN ADDITIONAL ASSISTANT PHYSICIAN.

The necessity for another assistant physician at the asylum is so clear and unquestionable, so overwhelmingly urgent, that to discuss the proposition would be a wanton waste of time and words. We trust the next Legislature will meet this want by provision for the appointment of an additional medical attendant.

The remarks of the Resident Physician, relative to the compensation allowed the Assistant Physicians of this asylum, will not fail to engage your consideration. He pays a merited tribute to Doctors Dozier and Hatch, and recommends that their faithful and valuable services be rewarded by an increase of compensation.

The salary of the Resident Physician is inadequate to the great labor he performs, and the fearful responsibility that rests upon him. Dr. Wilkins has a peculiar fitness for the important station he occupies. He has made insanity a special study for twenty years. He has been Resident Physician of this asylum for more than ten years, and has discharged the onerous duties of the office with rare skill, fidelity, and ability. Though he meets his daily toil without murmur or complaint, yet the crushing responsibility of his charge, a vast overcrowded asylum, is ever present. There is a constant attrition, a slow deadly wear upon the man "as killing as the canker to the rose." He has no peace, sleep is not repose, nor is recreation rest.

It will be borne in mind that the law compels the physicians to reside on the asylum grounds, and bars them from engaging in private practice. The Board respectfully asks that the medical corps of this asylum be as liberally compensated, at least, as the State pays for similar services elsewhere.

INFIRMARIES.

In the last biennial report the Board earnestly pressed upon your consideration the necessity of establishing "infirmaries where the more feeble and sick patients may be removed from the noisy and tumultuous wards, and receive proper care and treatment."

Every day's experience is a conclusive argument in favor of this charitable and humane provision; such infirmaries are most convenient and needful adjuncts for the relief of the sick and feeble in any asylum, but here in the Napa Asylum, originally planned and designed for the accommodation of only six hundred patients, but where now, at the date of this report, one thousand four hundred and fifty-five inmates are crowded together, a decent respect and becoming sympathy for unfortunate suffering humanity dictates that these infirmaries should be established at the earliest practicable moment.

Very respectfully,

BENJAMIN SHURTLEFF,
President.
J. C. MARTIN,
J. Q. BROWN,
GEO. N. CORNWALL,
W. F. HENNING,
Trustees.

September 30, 1886.

TREASURER'S REPORT.

To the honorable Board of Trustees of the Napa State Asylum for the Insane:

GENTLEMEN: I herewith present my report as Treasurer of said asylum for the fiscal years ending June 30, 1885, and June 30, 1886, on account of "Maintenance," "Improvement of Grounds," and "Fire Protection." Vouchers are in my office for all moneys paid out:

THE TREASURER IN ACCOUNT WITH MAINTENANCE FUND FOR THE FISCAL YEAR ENDING JUNE 30, 1885.

Receipts.

Balance on hand per last report	$7,551 71
For July, 1884, received from the State	15,333 71
For August, 1884, received from the State	14,983 13
For September, 1884, received from the State	14,689 34
For October, 1884, received from the State	17,690 83
For November, 1884, received from the State	17,052 43
For December, 1884, received from the State	18,338 17
For January, 1885, received from the State	18,191 56
For February, 1885, received from the State	16,154 43
For March, 1885, received from the State	17,895 46
For April, 1885, received from the State	17,311 22
For May, 1885, received from the State	14,045 31
For June, 1885, received from the State	19,917 45
Total receipts	$209,154 75

Expenditures.

Paid out on orders of the Board of Trustees	$173,207 13
Balance on hand in State warrants	$35,947 62

THE TREASURER IN ACCOUNT WITH MAINTENANCE FUND FOR THE FISCAL YEAR ENDING JUNE 30, 1886.

Receipts.

Balance on hand, per last report, in warrants, and subject to outstanding claims	$35,947 62
For July, 1885, received from the State	15,715 48
For August, 1885, received from the State	14,350 60
For September, 1885, received from the State	14,991 83
For October, 1885, received from the State	16,425 32
For November, 1885, received from the State	17,569 85
For December, 1885, received from the State	17,547 56
For January, 1886, received from the State	18,860 96
For February, 1886, received from the State	17,185 32
For March, 1886, received from the State	15,331 20
For April, 1886, received from the State	18,226 51
For May, 1886, received from the State	15,445 92
For June, 1886, received from the State	13,833 61
Total receipts	$231,031 78

Expenditures.

Paid out on orders of the Board of Trustees	$219,432 14
Balance on hand	$11,599 64

THE TREASURER IN ACCOUNT WITH IMPROVEMENT OF GROUNDS FUND FOR THE FISCAL YEAR ENDING JUNE 30, 1885.

Receipts.

For July, 1884, received from the State	$35 50
For August, 1884, received from the State	75 25
For September, 1884, received from the State	39 40
For October, 1884, received from the State	65 00
For November, 1884, received from the State	121 75
For December, 1884, received from the State	81 00
For January, 1885, received from the State	112 28
For February, 1885, received from the State	27 95
For March, 1885, received from the State	63 43
For June, 1885, received from the State	21 50
Total receipts	$643 06

Expenditures.

Paid out on orders of the Board of Trustees	$530 18
Balance on hand	$112 88

THE TREASURER IN ACCOUNT WITH IMPROVEMENT OF GROUNDS FUND FOR THE FISCAL YEAR ENDING JUNE 30, 1886.

Receipts.

By balance on hand per last report	$112 88

Expenditures.

Paid out on orders of the Board of Trustees	$112 88

THE TREASURER IN ACCOUNT WITH THE FIRE PROTECTION FUND FOR THE FISCAL YEAR ENDING JUNE 30, 1885.

Receipts.

Balance on hand per last report	$335 65
For July, 1884, received from the State	535 55
For August, 1884, received from the State	559 05
For September, 1884, received from the State	820 02
For October, 1884, received from the State	23 73
Total receipts	$2,294 00

Expenditures.

Paid out on orders of the Board of Trustees and Resident Physician	$2,294 00

Respectfully submitted.

C. B. SEELEY, Treasurer.

NAPA, August 12, 1886.

REPORT OF THE RESIDENT PHYSICIAN.

To the honorable Board of Trustees of the Napa State Asylum for the Insane:

GENTLEMEN: According to custom, and in obedience to law, it becomes my duty again to lay before you my annual report.

Having submitted for your information and consideration twenty-four monthly and one annual report in the last two years, it would seem unnecessary for me at this time to do more than submit a summary of the movement of patients, and the ordinary business transactions of the asylum during the last two years; and this you will find fully set forth in the various tables accompanying this report. But as the Legislature will convene in January, its members will have a right to know, and should be informed of the needs of the institution, that the necessary appropriations may be made for its maintenance.

In my report for the year ending June 30, 1885, the movement of the patients was as exhibited in the following table:

RESIDENT PHYSICIAN'S REPORT, FOR THE YEAR ENDING JUNE 30, 1885.

To the Board of Trustees of the Napa State Asylum for the Insane:

GENTLEMEN: I herewith submit to you my annual report, for the year ending June 30, 1885.

ANNUAL SUMMARY.

The following summary exhibits the number of patients in the asylum June 30, 1884, number admitted, number under care and treatment, number discharged, eloped, and died during the year, and the number remaining in the asylum June 30, 1885:

FROM JUNE 30, 1884, TO JUNE 30, 1885.	Males.	Females.	Total.
Number of patients June 30, 1884	809	510	1,319
Number admitted during the year	305	174	479
Number under care and treatment	1,114	684	1,798
Number discharged, recovered	83	36	119
Number discharged, improved	72	74	146
Number discharged, unimproved	4	3	7
Number discharged, not insane	1	1	2
Number died	88	22	110
Number eloped	4	1	5
Discharged, died, and eloped	252	137	389
Number remaining June 30, 1885	862	547	1,409

A corresponding table for the year ending June 30, 1886, shows the following state of facts:

RESIDENT PHYSICIAN'S REPORT FOR THE YEAR ENDING JUNE 30, 1886.

To the Board of Trustees of the Napa State Asylum for the Insane:

Gentlemen: I herewith submit to you my annual report for the year ending June 30, 1886.

ANNUAL SUMMARY.

The following summary exhibits the number of patients in the asylum June 30, 1885, number admitted, number under care and treatment, number discharged, eloped, and died during the year, and the number remaining in the asylum June 30, 1886:

From June 30, 1885, to June 30, 1886.	Males.	Females.	Total.
Number of patients June 30, 1885	862	547	1,409
Number admitted during the year	190	156	346
Number under care and treatment	1,052	703	1,755
Number discharged, recovered	55	25	80
Number discharged, improved	54	46	100
Number discharged, unimproved	9	6	15
Number discharged, not insane	5	1	6
Number died	77	36	113
Number eloped	5	-------	5
Discharged, died, and eloped	205	114	319
Number remaining June 30, 1886	847	589	1,436

It will thus be seen that the number of patients committed to this asylum during the fiscal year just closed (three hundred and forty-six), is one hundred and sixty-eight less than the average during the ten preceding years. This, of course, is due to the fact that the new building at Stockton was opened for the reception of patients last Winter, and that most of the patients from San Francisco have since been sent to that institution. Notwithstanding this relief, however, we have twenty-seven patients more at the end than at the beginning of the year, making a total of one thousand four hundred and thirty-six; being thirty-six in excess of the number provided for by the Legislature in the appropriation for the maintenance of this asylum. Yet, owing to the extraordinary reduction of the per capita cost of maintenance (37.04 cents per day), I trust we will be able to get through the present year without the necessity of presenting a deficiency bill. Yet, this will depend on the *packing* the Courts will compel us to endure by sending persons to the asylum who can and should be kept at home by their families, or in the county hospitals.

In addition to the eight hundred and twenty-five patients committed to this asylum during the two years ending June 30, 1886, I am informed by Dr. Mays, Superintendent of the asylum at Stockton, that eight hundred and forty-five were sent to that institution, making a total of one thousand six hundred and seventy, or eight hundred and thirty-five commitments of insane persons per annum. The bare statement of this fact is appalling, and should cause our law-makers to pause and consider if some remedy cannot be devised to change the condition of things that leads to this result.

In looking over the tables of nativity, it will be seen that a large majority of the inmates of our asylums are foreign born, many of them not citizens of the United States; and quite a number, we believe, were insane before coming to our country, while others are cases of idiocy or imbecility, who were either sent to this State by the aid of the Governments from which they came or the communities in which they lived. The remedy is clear to my mind, and I do not hesitate to say that every person who is known to have been insane or otherwise defective before coming to this State, and every Chinaman who is being supported by the State, should be returned to their native lands; and that the Legislature should make an appropriation for this purpose. The expense of sending these persons to their homes would not exceed $50 each, while, to keep them, will cost $150 per annum for an average period of fourteen years, or $2,100 each if kept until they die.

IMPROVEMENTS.

Since your last report many necessary improvements have been made, and a large amount of extraordinary repairs done. A new gasholder with a capacity of six thousand feet, and a new bench of retorts for the manufacture of gas, have been constructed, and two new boilers of sixty-horse power each have been purchased from J. V. Hall, of the Sacramento Boiler Works, San Francisco.

A large, convenient, and comfortable calf-house and barn and a shed for lumber, have been constructed. Lake Camilla has been enlarged, and from it alone the lawns, flowers, and shrubs have been watered, kept green, and made to flourish and bloom. Its capacity, twelve million gallons, is not sufficient to supply all of our wants, and an additional reservoir will be constructed during the season. The water from the new lake can be drawn into Lake Camilla at pleasure. Its capacity will be about eight million gallons, making a total reserve of twenty million gallons, to be used during the dry season. The dam of the fire reservoir has been raised, and its capacity increased to one million five hundred thousand gallons. Four hundred additional fruit trees of choice varieties, including the orange and the olive, have been planted, while many minor improvements have been made.

PAINTER AND PLUMBER.

A painter and a plumber have been constantly employed, and a tinner is also necessary.

REPAIRS.

During the next two years, many of the ward floors will require relaying, and all of the closets and bath-rooms need repairing, and when practicable, enlarged. Better still, removed from the wards entirely, and new ones constructed outside the building, such as have been adopted in the admirable plans for the California Hospital for the Chronic Insane in Santa Clara County. The sewers and ventilation also need attention, and should receive it as soon as practicable.

INFIRMARIES.

The infirmaries, so often asked for and so often denied, are as much needed as ever, but an appropriation for them at this time must be left to the discretion of the Legislature.

COW BARN AND DAIRY HOUSE.

A cow barn and dairy house are also much needed, and will be constructed during the season.

COAL HOUSE AND MANGLE ROOM.

As soon as possible, the coal bin and shed will be constructed; also a room provided for a steam mangle, as it is impossible to do all the ironing required by hand. A new washing machine will also be required. An electric watch clock has been constructed, with a station in each ward and one at every desirable point on the outside. This clock is stationed in the office of the Resident Physician, where the exact time of the visits of the night watches are registered. Any dereliction of duty is made known by the dials of this clock, while the attentive watchman is duly credited with marks of his fidelity. It is a valuable addition to our night service, and insures regularity in the visits of the watchmen.

THE CONTINGENT FUND.

Your biennial report shows that most of the improvements made during the period under discussion have been paid for out of the contingent fund, and I am satisfied that most of those required in the future can be made from this fund, if as carefully husbanded and judiciously expended in the future as it has been in the past.

In some cases the expense of improvements have been divided between the maintenance and contingent funds. For instance, the boilers and gasholder were paid for out of the maintenance fund, while the cistern for the gasholder and the setting of the boilers, including the construction of the flues, etc., will be charged to the contingent fund.

THE CALIFORNIA HOSPITAL FOR THE CHRONIC INSANE.

I am informed that the Board of Trustees of the above named hospital are pushing the work with commendable zeal and energy, and that we may reasonably look for the completion of the building, so auspiciously begun, by the first of July next; and as soon thereafter as the heating apparatus, kitchen and laundry furniture and machinery, and furniture for the wards can be put in place we will begin to receive some relief from the crowded wards of existing asylums. Whether this relief shall come through the removal of a portion of the harmless cases of mental unsoundness, or by making the new hospital a receptacle for all classes of the insane, the result will be the same. I believe it would be preferable, in all respects, to strike the word "chronic" from the name of the hospital, and let all be committed to it who live nearer than to Stockton or Napa. I can see no reason why a patient should be sent from Santa Cruz, Monterey, or Santa Clara, to Stockton or Napa, and another taken from these asylums to the California Hospital for the Chronic Insane, the State paying the cost of transportation both ways, and gaining nothing in return. The Commissioners who selected the site for this hospital, in their report to the State Board of Examiners say:

> The place chosen is within forty miles of one third of the population of the State, and is located at Agnew Station, on the South Pacific Coast Railroad, thirty-nine miles from San Francisco and forty-one miles from Santa Cruz. It is two and a half miles south from Alviso, three miles north of Santa Clara, three miles west of Milpitas, and five and a half miles from San José. It contains two hundred and seventy-five acres of land, is situated between the county road from Alviso to Santa Clara and the Saratoga and Lick Mill Paper Manufacturing Company, on the Guadalupe River. It is all arable land, and very productive, being fine grazing, hay, and grain land, and about one hundred acres is of a light loam mixed with sand. This is nearest the river, and a portion of it overflows in freshets, rendering it particularly well adapted to the growth of vegetables of all kinds, and most varieties of fruits. There is also on the place not less than $10,000 worth of improvements,

consisting of a large dwelling of ten rooms, a new stable and barn (sixty-eight by eighty feet), and several artesian wells, flowing nearly if not quite one million gallons of water per day. Most of the land has been graded, and can be irrigated to any desirable extent from the artesian wells, which are located on different portions of the land. The elevation of the highest point is eighteen feet above tide water, and falls towards the Guadalupe and the bay. The distance from the proper site for the building to the river is about three quarters of a mile, which will be the length of the sewer pipe.

For convenience of access, abundance of good, pure water, sewerage facilities, and fertility of soil, we know of no more desirable location, while the universal verdict of all with whom we conversed attests the salubrity of the climate, and the healthfulness of the locality. The price agreed upon is $55,000.

Before closing this report we deem it a privilege and a duty to call your attention to some of the difficulties with which we had to contend, and some of the obstacles that could not be removed without a greater expenditure than we felt warranted in making.

In every instance where a desirable site was found, with an abundant supply of water at sufficient elevation to be conveyed in pipes by gravitation over the top of a building seventy-five feet in height, it had either been appropriated for mechanical or irrigating purposes or claimed by riparian owners. We were thus prevented from selecting some of the most desirable sites that came under our observation. With the experiences of San Quentin, Stockton, and Napa before us, we could not afford to make a mistake with regard to an abundant water supply, and we were determined to secure this great necessity beyond the possibility of a doubt.

We are not unmindful of the fact that the State has been paying $12,000 per annum for water at San Quentin; that at Napa the water supply has cost more than the twelve hundred acres of land belonging to that asylum, while at Stockton the cost of water has amounted to thousands of dollars. The quantity of water at the place selected is five times as great as that at the Stockton or Napa Asylum, and it is worth at least half as much as the amount asked for the property.

A person can leave San Francisco at 2:30 o'clock P. M., visit the property site, and return to the city by 6:30 P. M. the same day.

THE PLANS.

The plans adopted by the Board of Trustees, and approved by the Superintendent of the asylum at Stockton, and the Resident Physician of this asylum, were concurred in by the State Board of Examiners. They were prepared with great care, and, in my opinion, equal, if they do not surpass, the best I ever saw. Certainly many of the defects in this asylum and that at Stockton have been avoided, and valuable improvements substituted in their stead. I am convinced, however, that, to some extent, in future additions to this hospital the segregated system should be adopted, as it has been at Kankakee, Illinois, Norristown, Pennsylvania, and the asylum now being built at Toledo, Ohio. I am aware that this is neither the time nor place to discuss this question, and I only mention it to place myself on record in regard to it.

The kitchen, laundry, bakery, boiler house, and storeroom are much larger than they are at Napa or Stockton, as the time may come when fifteen hundred patients will be accommodated there, and in such an event they will not be cramped for room as we are here. I do not wish it inferred that I am in favor of so many patients being congregated in one asylum; on the contrary, I have always favored the distribution of these institutions in various portions of the State, that all may be accommodated without going too far from home. But I am painfully aware of the disposition of our legislators to compel us to take care of large numbers, and it was thought best to lay the foundation of this hospital broad enough to cover any contingency that may arise; and especially if this is to be continued, as at present designed, for the accommodation of the chronic insane.

I am also impressed with the importance of a liberal appropriation by the Legislature for the fitting up and furnishing the buildings now in process of construction, and also for the erection of two or three additional sections of the ward buildings.

For this reason I have refrained from pressing any appropriation for this asylum, other than the usual provision for maintenance, which must be made; and as it is not probable that our numbers will greatly decrease during the next two years, and will certainly be greater this year, I think it would be unwise to ask for a less sum than was appropriated by the last Legislature, viz.: for the thirty-ninth and fortieth fiscal years, $408,800.

MEETING OF THE ASSOCIATION.

For the first time in ten years, I had the pleasure of attending the annual meeting of the Medical Superintendents and Assistant Physicians of American Institutions for the Insane, which met this year at Lexington, Kentucky, on the eighteenth of May. These meetings are not only interesting, but instructive, and should be attended by every Medical Superintendent as often as practicable. The interchange of ideas, and the discussion of important subjects connected with the care and treatment of the insane, cannot be otherwise than beneficial and enlightening to the best informed, and often lead to improved management of the institutions over which we preside.

It was my desire and intention to visit many of the asylums in other States, that comparisons might be made between them and our own in all things pertaining to the good of these institutions, whether in the matter of medical treatment, management, or construction, to the end that this asylum might be benefited. But the illness of my wife in New York not only prevented the accomplishment of my plans, but detained me a month beyond my allotted time.

The venerable asylum at Lexington, Kentucky, established in 1824, and so ably managed by Dr. Chenault, though suffering from age and the errors of the period in which it was built, has been wonderfully improved in many of its departments, and its surroundings made as attractive and beautiful as the "blue grass" country in which it is located. It is doing good work, and deserves the high reputation it has achieved.

Among others, I visited the asylum at Hopkinsville, Kentucky, so efficiently presided over by my esteemed friend, Dr. Rodman, and that of Tuscaloosa, Alabama, under the management of that accomplished gentleman and successful Superintendent, Dr. Bryce. In these asylums I saw enough to convince me, that under favorable conditions, in an asylum not overcrowded, and with a sufficient number of willing and efficient attendants, that it is possible to dispense with mechanical restraint of all kinds, and that, too, without substituting the "wet sheet," or chemical restraint in their stead. It is very different, however, in a large and overcrowded institution like this, where we are compelled, not only to violate the laws of health but the laws of common sense and the plainest dictates of humanity, by putting two insane patients in a room eight by ten. besides making beds on the floors of the corridors for many others. This crowded condition produces friction, irritation, inconvenience, and loss of sleep, and often uncontrollable excitement that is difficult to allay. We know too well that justice to our patients cannot be done under these circumstances, and yet we are too often blamed by persons who do not seem to have sense enough to know that we cannot perform impossibilities. The asylum at Buffalo, New York, also one of the best and among the best managed in the land, impressed me most favorably, but my time unfortunately was too limited to permit a minute or thorough examination of its general management. The Superintendent, Dr. Andrews, was absent at the time of our visit, but his hospitable wife and courteous assistant, Dr. Granger, placed us under pleasant obligations by kind attentions not soon to be forgotten.

I was also impressed with other matters that came under my notice at these asylums; the patients were fewer in number, better clad, and fed with a more varied diet than is furnished in our asylums. The reasons for this are obvious:

First—The Superintendents of eastern institutions have the right to say when their asylums are full, and the *power* to refuse to receive patients when the limit is reached; while in many States, the law provides that no patient can be sent to an asylum without first ascertaining from the Superintendant whether a patient, whose condition and history must be given, can be received.

Second—They are allowed and expend twenty per cent more per capita for maintenance than we do.

ANOTHER ASSISTANT PHYSICIAN.

In addition to this, the number of Assistant Physicians allowed the Superintendents there is much greater than with us, and this defect should be remedied at the earliest possible moment. In my report to your honorable Board two years ago, your attention was called to this matter in the following words:

> I also desire to call your attention to the fact that no asylum for the insane in the world, so far as my information extends, has so small a medical staff, in proportion to the number of patients, as pertains to the asylums of California. As you must know, much of my time is necessarily devoted to the general management of the institution in all of its manifold details. There are many days that it is not possible for me to visit the "wards," and when one of the medical staff is either sick or absent, the duties of visitation and correspondence are more than should devolve upon the rest. I therefore submit for your consideration the propriety, if not the necessity, of employing a Third Assistant Physician, who must necessarily be a man without a family. He should be a well educated and accomplished physician, with a taste for pathological studies, and especially of nervous diseases. His salary can be fixed at such rates as the Board may deem just and proper.

In my opinion, the Boards of Trustees of the asylums of the State should be invested with the power, at their discretion, to employ additional physicians when their services are needed, just as they do employés and attendants. If desirable, this power could be limited by a proviso, that not more than one assistant to every three hundred patients shall be employed. In this connection I deem it my duty and an act of justice to suggest that the able and accomplished gentlemen who have so long and so faithfully assisted me in my arduous, delicate, and responsible duties should be placed on an equal basis with the medical assistants at Stockton. Dr. Dozier has been in the service more than ten years, and Dr. Hatch nearly eight years, and there is certainly no good reason why they should receive $500 per annum less than the gentlemen who perform similar services there, and I am satisfied the assistants at Stockton are entitled to all they receive.

WATER PIPE.

I again call your attention to the fact that the six-inch wrought iron pipe from Spencer Creek is giving out in some places, and all may go at any time; two thousand seven hundred feet have already been replaced with cast-iron pipe, and I advise the purchase of two or three thousand feet whenever it can be procured at satisfactory rates.

STEWARD'S REPORT.

The Steward's report, as usual, contains an itemized account of all of the expenditures of the asylum, except those from the contingent fund, exhibited in the biennial report of the Board. It also gives the product of the farm, garden, and dairy, including the orchard and vineyard.

In this connection I am happy to say that the young trees and vines are beginning to bear, and will very soon furnish all the fruit the patients can properly consume. Even this year the prospects are promising for a fair yield.

EMPLOYMENT OF PATIENTS.

Every effort is still being made to find employment of some kind for all of our patients who can be induced to assist in any of the many departments of the institution. A large number prefer occupation to idleness, and from this class the most of the recoveries are found and discharges made. There are others who have neither the disposition nor energy to work, but prefer to go upon the grounds, sit under the shade trees, write letters, talk, make complaints against the Judges who commit them, the doctors who examined them, the witnesses who testified in their cases, the physicians who treat them here, and the State that feeds, warms, and often clothes them. Strangers come upon the grounds daily, and are allowed to mingle freely and converse with the patients, which serves to divert the mind from their own trouble and thereby benefit the patient.

The freedom thus granted to our patients, and the privileges allowed to visitors, have some drawbacks and bad effects. Among the patients there are some monomaniacs—coherent, plausible, and bright, and often deceive the ordinary observer; while, among the visitors, there are some feeble-minded people, who believe all they are told, and think they are exposing great outrages committed in the asylum, when they take away and mail letters written by the patients to the President of the United States, the Chief Justice, Governor, Archbishop, or some lawyer or editor, as fancy may dictate.

I regret that our patients should disturb and often annoy persons on the outside with their letters, and do all I can to prevent it; yet feel that it is better that the public should occasionally be annoyed than to deprive hundreds of our patients of the privileges granted them. The open air and outdoor exercise are healthful, and in my opinion, more important factors in the treatment and cure of insane persons, than medicine. Our efforts to combine these potent remedies will not be abated, and the inconvenience must be endured that the good results may be attained.

OBLIGATIONS.

Our obligations are due, and are gratefully tendered, to every person who has in the least degree contributed to the pleasure, happiness, relief, or comfort of our patients. Kind words, tenderly spoken, though apparently unheeded at the time, leave lasting and salutary impressions on the mind, and are often referred to by patients, after recovery, as the first ray of hope that has entered their despondent souls. *Acts* are still more powerful than words, and their effects more enduring and permanent.

These principles and precepts are incorporated in our by-laws, and impressed upon the mind of every employé, and especially every attendant in the asylum. By most of them they are heeded and practiced; and to all such I am under obligations, and extend the approval of "well done, good and faithful servant." But as the faithless will crowd in among the faithful, and the cruel among the kind-hearted, in all institutions governed and supplied with human agencies, we cannot claim, nor expect, that this asylum is an exception. On the contrary, the very fact that more attendants are discharged for unkind treatment of patients than for any or all other causes, demonstrates the truth of the old adage, that "there are black sheep in every flock." The unkind treatment of patients by attendants will reach the public ear, to the detriment of the institution, while the dismissal of the attendant is not generally known. I therefore give due and timely notice that hereafter, with your approval, I will publish in my future reports the name of every attendant who so conducts himself as to deserve a discharge, together with the cause thereof. It has ever been my custom to report every such case to your honorable Board; but this does not reach the public ear.

I gratefully acknowledge that the entire Board have sustained me in every effort to make civil service in this asylum an accomplished fact—good service everything, politics nowhere—for all of which I offer heartfelt thanks.

We are under obligations to the following persons for donations of books, papers, etc.: Dr. B. Shurtleff, Miss Dwyer, C. Hartson, Mrs. S. E. Holden, Mrs. J. B. Stevens, R. H. Sterling, H. C. Gesford, A. W. Norton, Mrs. C. R. Gritman, Henry Brown, J. W. Wilcox, Mrs. J. A. McClelland, G. N. Cornwall, Geo. T. Smith, F. E. Johnston, Wm. Gardener, A. W. Robinson, A. Muller, J. Eggleston, John Rausch, Col. J. P. Jackson, and the Young Men's Christian Association of Napa. We are also under renewed obligations to the publishers of the following newspapers, kindly sent us regularly for distribution among the patients, viz.: The Pacific, Journal of Commerce, Monitor, Staats Zeitung, New Age, The Hebrew, California Christian Advocate, Scientific Press, Rural Press, Daily Post (German), Virginia City Chronicle, Amador Sentinel, Colusa Sun, Sacramento Bee, Martinez Gazette, San José Herald, Petaluma Argus, Petaluma Courier, Napa Reporter, Napa Register, Russian River Flag, Vallejo Chronicle, Dixon Tribune, San Luis Obispo Tribune, Cloverdale Enterprise, Oakland Journal, Sonoma Journal, Calistogian, People's Cause, Los Angeles Herald, Oakland Churchman, and Los Angeles La Cronica.

Respectfully,

E. T. WILKINS,
Resident Physician.

August 23, 1886.

APPENDIX.

APPENDICES.

NUMBER OF ADMISSIONS, RECOVERIES, DEATHS, ETC.

The following table exhibits the number of admissions, recoveries, discharges, deaths, elopements, number resident at the close of each year, the increase for each year, whole number treated each year, and in the aggregate; also, the ratio of recoveries and deaths each year, and for the whole time, from November 15, 1875, to July 1, 1886:

YEARS.	Admissions	Recoveries	Discharges, Uncured	Deaths	Escapes	Number Resident at close of each year	Increase	Whole Number Treated	Per cent of Recoveries to Admissions	Per cent of Deaths on Number Treated
November 15, 1875, to July 1, 1876	321	69	20	20	4	208	208	321	21.49	6.23
July 1, 1876, to July 1, 1877	451	140	71	49	4	395	187	659	31.04	7.43
July 1, 1877, to July 1, 1878	433	148	71	70	11	528	133	828	34.11	8.45
July 1, 1878, to July 1, 1879	615	184	133	104	8	714	186	1,143	29.91	8.22
July 1, 1879, to July 1, 1880	572	189	163	91	4	839	125	1,286	31.29	7.08
July 1, 1880, to July 1, 1881	563	133	122	124	2	1,021	182	1,402	23.62	8.84
July 1, 1881, to July 1, 1882	543	125	161	107	----	1,172	151	1,564	23.02	6.84
July 1, 1882, to July 1, 1883	463	127	174	112	3	1,219	47	1,635	27.43	6.85
July 1, 1883, to July 1, 1884	500	130	177	90	3	1,319	100	1,719	26.00	5.24
July 1, 1884, to July 1, 1885	479	119	155	110	5	1,409	90	1,798	24.84	6.12
July 1, 1885, to July 1, 1886	346	80	121	113	5	1,436	27	1,755	23.12	6.43

TABLE I.

Showing the counties from which four hundred and seventy-nine patients were admitted, from July 1, 1884, to July 1, 1885.

Counties.	Males.	Females.	Total.
Alameda	7	15	22
Butte	1	1	2
Colusa	4	3	7
Contra Costa	6	--------	6
Del Norte	1	--------	1
Humboldt	4	4	8
Inyo	--------	1	1
Lake	2	3	5
Marin	8	2	10
Mendocino	1	3	4
Monterey	6	2	8
Napa	12	6	18
Nevada	3	2	5
Placer	1	2	3
Sacramento	6	5	11
San Benito	1	1	2
San Bernardino	1	--------	1
San Diego	6	4	10
San Francisco	167	94	261
San Luis Obispo	7	1	8
San Mateo	6	2	8
Santa Barbara	4	1	5
Santa Clara	2	2	4
Santa Cruz	4	3	7
Shasta	2	2	4
Solano	21	4	25
Sonoma	13	6	19
Sutter	--------	1	1
Tehama	1	2	3
Ventura	5	--------	5
Yolo	2	--------	2
Yuba	1	2	3
Totals	305	174	479

TABLE II.

Showing the nativity of four hundred and seventy-nine patients, admitted from July 1, 1884, to July 1, 1885.

NATIVITY.	Males.	Females.	Total.
United States.			
Alabama	1		1
Arkansas	1		1
California	33	25	58
Connecticut	1	1	2
Georgia		1	1
Illinois	4	2	6
Indiana	3		3
Iowa	1	3	4
Kentucky	5		5
Louisiana		1	1
Maine	3	5	8
Maryland		1	1
Massachusetts	7	7	14
Michigan	2	2	4
Missouri	2	5	7
New Jersey	2	1	3
New Hampshire	3	1	4
New York	17	9	26
North Carolina	1		1
Ohio	12	5	17
Pennsylvania	7	2	9
Tennessee	3	1	4
United States	5	3	8
Vermont	1	2	3
Virginia	3	1	4
Wisconsin	1	1	2
Totals	118	79	197
Foreign Countries.			
Australia	1		1
Austria	1		1
Bavaria	1		1
Born at sea	1		1
Canada	2	2	4
China	12	1	13
Denmark	5	1	6
England	8	10	18
Finland	1	1	2
France	12	6	18
Germany	37	19	56
Greece	2		2
Hungary		1	1
Ireland	47	39	86
Italy	7	1	8
Jamaica	1		1
Mexico	4		4
New Brunswick	3	1	4
New Zealand		1	1
Norway	1	2	3
Poland	1		1
Portugal	2		2
Prince Edward's Island		1	1
Prussia	2	1	3
Sandwich Islands	1		1
Shetland Islands	1		1
Scotland	2		2
Spain	1		1
Sweden	4	2	6
Switzerland	9	1	10
Unknown	16	2	18
Carried forward	185	92	277

TABLE II—Continued.

NATIVITY.	Males.	Females.	Total.
Brought forward	185	92	277
Wales	1	1	2
Western Islands	1	1	2
Totals	187	94	281
Territories.			
Utah Territory	--------	1	1

RECAPITULATION.

NATIVITY.	Males.	Females.	Total.
United States	118	79	197
Foreign countries	171	92	263
Territories	--------	1	1
Unknown	16	2	18
Totals	305	174	479

TABLE III.

Showing the ages of four hundred and seventy-nine patients at the time of their admission in the Asylum, from July 1, 1884, to July 1, 1885.

AGES.	Males.	Females.	Total.
Between 5 and 10 years	1	-------	1
Between 10 and 20 years	12	7	19
Between 20 and 30 years	77	39	116
Between 30 and 40 years	72	44	116
Between 40 and 50 years	59	48	107
Between 50 and 60 years	33	17	50
Between 60 and 70 years	17	12	29
Between 70 and 80 years	10	4	14
Between 80 and 90 years	3	1	4
Unknown	21	2	23
Totals	305	174	479

TABLE IV.

Showing the supposed cause of insanity in four hundred and seventy-nine patients, as stated in commitments, from July 1, 1884, to July 1, 1885.

SUPPOSED CAUSES.	Males.	Females.	Total.
Business troubles	4	--------	4
Change of life	--------	4	4
Child birth	--------	6	6
Death of children	1	2	3
Death of father	--------	1	1
Death of husband	--------	5	5
Death of wife	1	--------	1
Disappointment in love	5	4	9
Domestic trouble	4	16	20
Epilepsy	13	9	22
Excitement	--------	1	1
Fright	--------	1	1
Grief	--------	2	2
Hereditary	12	14	26
Ill health	2	2	4
Jealousy	--------	1	1
Injury to head	12	2	14
Intemperance	14	6	20
Loss of property	7	5	12
Loss of sight	1	--------	1
Masturbation	47	2	49
Old age	3	2	5
Overwork	2	1	3
Paralysis	2	--------	2
Religion	8	7	15
Spiritualism	3	2	5
Sunstroke	1	--------	1
Suppressed menstruation	--------	3	3
Syphilis	4	--------	4
Typhoid fever	1	1	2
Unknown	152	70	222
Use of opium	6	1	7
Uterine troubles	--------	4	4
Totals	305	174	479

TABLE V.

Showing the class of insanity of four hundred and seventy-nine patients, as stated in commitments, from July 1, 1884, to July 1, 1885.

CLASS.	Males.	Females.	Total.
Dementia	47	13	60
Dipsomania	1	-------	1
Idiocy	-------	1	1
Mania	173	105	278
Melancholia	24	24	48
Monomania	32	13	45
Nymphomania	-------	2	2
Puerperal mania	-------	3	3
Senile dementia	2	-------	2
Unknown	26	13	39
Totals	305	174	479

TABLE VI.

Showing the civil condition of four hundred and seventy-nine patients, admitted from July 1, 1884, to July 1, 1885.

Civil Condition.	Males.	Females.	Total.
Divorced	1	4	5
Married	77	98	175
Single	195	37	232
Unknown	19	2	21
Widows	-------	33	33
Widowers	13	-------	13
Totals	305	174	479

TABLE VII.

Showing the occupation of four hundred and seventy-nine patients, admitted from July 1, 1884, to July 1, 1885.

Occupation.	Males.	Females.	Total.
Agents	2	-------	2
Artists	1	-------	1
Bakers	3	-------	3
Barbers	1	-------	1
Barkeepers	1	-------	1
Blacksmiths	5	-------	5
Boilermakers	1	-------	1
Bricklayers	1	-------	1
Butchers	3	-------	3
Carpenters	14	-------	14
Clerks	10	-------	10
Confectioners	1	-------	1
Convicts	7	-------	7
Cooks	6	1	7
Coopers	1	-------	1
Dairymen	3	-------	3
Detectives	1	-------	1
Dishwashers	1	-------	1
Domestics	-------	15	15
Engineers	3	-------	3
Farmers	22	1	23
Gardeners	2	-------	2
Hackdrivers	2	-------	2
Harnessmakers	2	-------	2
Housewives	-------	113	113
Jewelers	3	-------	3
Laborers	88	-------	88
Lawyers	2	-------	2
Locksmiths	1	-------	1
Lumbermen	2	-------	2
Machinists	5	-------	5
Merchants	3	-------	3
Miners	4	-------	4
Ministers	1	-------	1
Music teachers	-------	1	1
No occupation	27	23	50
Painters	4	1	5
Peddlers	4	-------	4
Physicians	2	-------	2
Pianomakers	1	-------	1
Plasterers	1	-------	1
Printers	2	-------	2
Sailors	14	-------	14
Carried forward	257	155	412

TABLE No. VII—Continued.

OCCUPATION.	Males.	Females.	Total.
Brought forward	257	155	412
Seamstresses		4	4
Servants	1	5	6
Sheepherders	2		2
Shoemakers	7		7
Soldiers	7		7
Students	1		1
Surveyors	1		1
Tailors	2		2
Teachers	2	5	7
Teamsters	7		7
Tinsmiths	1		1
Unknown	12	5	17
Upholsterers	2		2
Waiters	3		3
Totals	305	174	479

TABLE VIII.

Showing the cause of deaths of one hundred and ten patients, from July 1, 1884, to July 1, 1885.

Month.	CAUSE OF DEATH.	Nativity.	Age.	Males	Females
July, 1884	Maniacal exhaustion	France	58	1	
July, 1884	Apoplexy	Ireland	75	1	
July, 1884	Exhaustion	China	24	1	
July, 1884	Organic disease of brain	Ireland	40	1	
July, 1884	Consumption	Ireland	41		1
July, 1884	Paralysis	Austria	60	1	
July, 1884	Inanition	California	19		2
July, 1884	Dysentery	Ireland	46		1
August, 1884	Exhaustion	France	47	1	
August, 1884	Heart disease	Pennsylvania	52	1	
August, 1884	Dysentery	Ireland	57		1
August, 1884	Organic disease of brain	Scotland	42	1	
August, 1884	Paresis	Ireland	46	1	
August, 1884	Consumption	Ireland	31		1
August, 1884	Organic disease of brain	England	30	1	
August, 1884	Organic disease of brain	France	45	1	
August, 1884	Strangulation of bowels	Holland	55	1	
August, 1884	Heart disease	Italy	59		1
August, 1884	Organic disease of brain	New York		1	
August, 1884	General paralysis	Jamaica	48	1	
September, 1884	Consumption	China	35	1	
September, 1884	Consumption	Austria	37	1	
September, 1884	General paralysis	Tennessee	58	1	
September, 1884	Exhaustion	New York	58	1	
September, 1884	Dropsy	Ireland	43	1	
September, 1884	Consumption	United States	62		1
October, 1884	Organic disease of brain	Ireland	55	1	
October, 1884	Exhaustion	Italy	42	1	
October, 1884	General paresis	France	56	1	
October, 1884	Peritonitis	China	25	1	
October, 1884	Organic disease of brain	Germany	33	1	
November, 1884	General paresis	Austria	26	1	
November, 1884	Pneumonia	Unknown		1	
November, 1884	Exhaustion	Maine	56		1
November, 1884	Exhaustion	China	55	1	
November, 1884	General paralysis	Hungary	36	1	
December, 1884	Organic disease of brain	Massachusetts	58	1	
December, 1884	Epilepsy	California	25	1	
December, 1884	Exhaustion	Germany	36		1
December, 1884	Organic disease of brain	Massachusetts	60	1	
December, 1884	Organic disease of brain	China		1	
December, 1884	Consumption	Mexico	48		1

TABLE VIII—Continued.

Month.	CAUSE OF DEATH.	Nativity.	Age.	Males.	Females.
December, 1884	Consumption	Ireland	37	1	----
December, 1884	Paralysis	Germany	57	1	----
December, 1884	Cancer of liver	United States	60	1	----
December, 1884	Epilepsy	England	30	1	----
December, 1884	Erysipelas	Ireland	53	1	----
December, 1884	Suicide	New York	58	1	----
December, 1884	Exhaustion	Ireland	74	1	----
January, 1885	Organic disease of brain	Ireland	52	1	----
January, 1885	Maniacal exhaustion	Germany	26	1	----
January, 1885	Exhaustion	Massachusetts	46	------	1
January, 1885	Consumption	Canada	27	1	----
January, 1885	Exhaustion	Ireland	34	------	1
January, 1885	Consumption	Germany	34	1	----
January, 1885	Epilepsy	California	32	1	----
January, 1885	Exhaustion	Unknown	------	1	----
January, 1885	Injury by patient	China	------	1	----
January, 1885	Cancer	France	54	1	----
January, 1885	Pericardial effusion	Ireland	53	------	1
January, 1885	Old age	New York	78	1	----
January, 1885	Maniacal exhaustion	Canada	27	1	----
February, 1885	Organic disease of brain	California	19	1	----
February, 1885	Organic disease of brain	Ireland	41	1	----
February, 1885	Organic disease of brain	Germany	39	1	----
February, 1885	Consumption	Portugal	37	------	1
February, 1885	Organic disease of brain	Sandwich Islands	36	1	----
February, 1885	Consumption	New York	49	1	----
February, 1885	Suicide	Prussia	29	1	----
March, 1885	Chronic diarrhœa	Ireland	46	------	1
March, 1885	Exhaustion	China	33	1	----
March, 1885	Exhaustion	Ireland	34	------	1
March, 1885	Œdema of lungs	Massachusetts	57	1	----
March, 1885	Paralysis	Pennsylvania	43	1	----
March, 1885	Organic disease of brain	Ohio	48	1	----
March, 1885	Organic disease of brain	Italy	54	1	----
April, 1885	Paralysis	England	54	1	----
April, 1885	Dysentery	Mexico	48	------	1
April, 1885	Organic disease of heart	England	29	1	----
April, 1885	Organic disease of brain	Maine	56	1	----
April, 1885	General debility	Ireland	56	1	----
April, 1885	Organic disease of brain	England	29	1	----
April, 1885	Paralysis	France	46	1	----
April, 1885	Organic disease of brain	Born at sea	51	1	----
April, 1885	Organic disease of brain	New York	46	1	----
May, 1885	Organic disease of brain	Germany	40	1	---
May, 1885	Consumption	Unknown	------	1	----
May, 1885	Pneumonia	California	22	1	----
May, 1885	Epilepsy	Kentucky	25	1	----
May, 1885	General paresis	Germany	49	1	----
May, 1885	Organic disease of brain	Germany	45	1	----
May, 1885	Epilepsy	California	23	1	----
May, 1885	Intestinal obstruction	Germany	56	1	----
May, 1885	Exhaustion	Pennsylvania	48	------	1
May, 1885	Suicide	Germany	47	------	1
May, 1885	Organic disease of brain	Ireland	58	------	1
June, 1885	Heart disease	Massachusetts	38	1	----
June, 1885	Exhaustion	England	46	1	---
June, 1885	Organic disease of brain	Germany	43	1	----
June, 1885	Heart disease	Ireland	47	1	----
June, 1885	Paralysis	Massachusetts	68	1	----
June, 1885	Organic disease of brain	Germany	51	------	1
June, 1885	Exhaustion	Ireland	65	1	----
June, 1885	Organic disease of brain	Ireland	41	1	----
June, 1885	Organic disease of brain	France	68	------	1
June, 1885	Exhaustion	Massachusetts	66	1	----
June, 1885	General paresis	Germany	38	1	----
June, 1885	Consumption	Prince Edw'ds Isl'd	26	1	----
June, 1885	Old age	New Jersey	80	1	----
June, 1885	Peritonitis	China	30	1	----

TABLE IX.

Recapitulation of the causes of death of one hundred and ten patients, from July 1, 1884, to July 1, 1885.

CAUSE OF DEATH.	Males.	Females.	Total.
Apoplexy	1	-------	1
Consumption	8	5	13
Dysentery	-------	3	3
Epilepsy	5	-------	5
Exhaustion	11	6	17
General paresis	8	-------	8
Heart disease	3	1	4
Maniacal exhaustion	3	-------	3
Old age	2	-------	2
Organic disease of brain	24	3	27
Paralysis	6	-------	6
All other causes	17	4	21
Totals	88	22	110

TABLE X.

Showing the articles made in the sewing-room from July 1, 1884, to July 1, 1885.

ARTICLES.	Number.
Aprons	634
Bath towels	434
Bed ticks	146
Brown sheets	2,099
Bed napkins	174
Carriage covers	2
Carpets	6
Carpet mats	70
Curtains	10
Check jackets	61
Chemises	630
Canvas mats	12
Counterpanes	46
Cotton-flannel vests	122
Cotton-flannel skirts	203
Drawers	478
Dresses	479
Duck jackets	19
Duck pants (pairs)	13
Duck quilts	19
Duck aprons	9
Demming skirts	6
Duck coats	19
Demming sacques	3
Flannel shirts	20
Flannel skirts	141
Mattresses	135
Napkins	75
Night gowns	454
Pillow slips (check)	955
Pillow slips (white)	904
Pillow ticks	81
Roller towels	433
Shrouds	19
Sun bonnets	201
Suspenders	42
Water-proof caps	12
White sheets	173

STEWARD'S REPORT.

TABLE FIRST.

Amount of articles purchased and consumed, and other expenses, for the fiscal year ending June 30, 1885.

Articles.	Value.
Flour	$9,831 40
Meat	30,165 39
Sugar	4,035 62
Tea	1,159 17
Syrup	1,853 81
Potatoes	2,667 87
Butter	9,104 90
Coffee and chicory	1,835 66
Lard	34 32
Fish	484 52
Poultry and eggs	2,491 27
Beans	1,097 07
Rice and cracked wheat	1,105 35
Cornmeal and oatmeal	1,175 50
Fruit	345 85
Vegetables	12 25
Salt	159 25
Vinegar and pickles	235 57
Small groceries	1,329 07
Soap	1,832 48
Drugs	1,475 47
Liquor and ale	252 13
Tobacco	1,714 95
Drygoods	5,808 63
Clothing and hats	5,470 20
Shoes and leather	2,757 00
Blankets	1,542 30
Furniture and crockery	1,251 66
Hardware and tinware	2,741 74
Spoons and cutlery	74 88
Carpeting and matting	922 17
Grain and feed	1,541 19
Garden tools and seed	112 24
Lumber	886 22
Building and repairs	752 92
Brooms and brushes	535 66
Books and stationery	256 78
Gas	1,820 18
Paints, oil, and glass	428 99
Fuel	14,141 07
Bedding	1,260 45
Castings, pipe, and iron	785 94
Payroll	75,468 50
Returned escapes	206 25
Discharged patients	457 50
Trustees' services and mileage	696 00
Telegraphing, postage, freight, and expressage	497 95
Ice	158 92
Exchange on coin	123 79
Surgical instruments	71 10
Advertising for supplies	300 00
Clothes baskets	39 00
Drain-tile	74 50
One set Pathological Anatomy	37 50
One steam heater and fixtures	302 00
One spring wagon	150 00
One piano	787 50
Carried forward	$196,859 60

Table First—Continued.

Articles.	Value.
Brought forward	$196,859 60
Labor	5 00
Sulphur	21 26
Giant powder and caps	6 66
One drug mill	18 00
One sewing machine	55 00
One coffee-mill	68 00
Miscellaneous	869 26
Total	$197,902 72

TABLE SECOND.

Showing the cost of the different departments for the fiscal year ending June 30, 1885.

Departments.	Cost.
Kitchen and dining rooms	$58,346 18
Wards	19,977 55
Bakery	10,041 31
Laundry	1,119 28
Engine room	325 25
Farm, garden, dairy, and stable	2,566 60
Trustees' services	696 00
Repairs	3,982 95
Drug store	1,685 55
Furnishing	2,642 35
Center building	1,502 78
Office	822 34
Discharged patients	441 50
Returned escapes	222 25
Gas	1,842 93
Fuel	14,115 12
Payroll	75,468 50
Coombs' ranch	335 95
Night watch	126 83
Tin shop	378 95
Advertising	300 00
Miscellaneous	962 55
Total	$197,902 72

TABLE THIRD.

Disbursements for the fiscal year ending June 30, 1885.

For What Purpose.	Amount.
Maintenance	$195,258 33
Furnishing	2,644 39
Total	$197,902 72

TABLE FOURTH.

Averages for the fiscal year ending June 30, 1885.

MONTHS.	Average Number of Patients Daily	Average Daily Expenses	Average Cost per Capita per Day	Average Cost per Capita per Month
July, 1884	1,329	$466 77	$\$0\ 36\frac{3}{10}$	$11 25
August, 1884	1,340	474 24	$35\frac{4}{10}$	10 97
September, 1884	1,335	499 52	$37\frac{4}{10}$	11 22
October, 1884	1,354	533 68	$39\frac{4}{10}$	12 21
November, 1884	1,361	566 15	$41\frac{6}{10}$	12 48
December, 1884	1,369	575 41	42	13 02
January, 1885	1,375	579 15	$42\frac{1}{10}$	13 05
February, 1885	1,379	613 38	$44\frac{4}{10}$	12 43
March, 1885	1,391	541 44	39	12 09
April, 1885	1,399	564 14	$40\frac{3}{10}$	12 09
May, 1885	1,403	479 11	$34\frac{2}{10}$	10 60
June, 1885	1,399	548 58	$38\frac{2}{10}$	11 46
Yearly average	1,370	$536 80	$\$0\ 39\frac{2}{10}$	$11 91

TABLE FIFTH.

Products of farm, garden, and dairy, for the fiscal year ending June 30, 1885.

ARTICLES.	Amount.
Cabbage, pounds	108,371
Beets, pounds	18,309
Turnips, pounds	32,713
Onions, pounds	29,065
Cauliflower, pounds	4,521
Celery, pounds	639
Radishes, pounds	1,416
Oyster plant, pounds	141
Lettuce, pounds	7,128
Red peppers, pounds	1,427
Carrots, pounds	22,476
Tomatoes, pounds	6,286
Parsley, pounds	302
Parsnips, pounds	386
Squash, pounds	453
Green peas, pounds	1,953
Potatoes, pounds	1,450
Asparagus, pounds	1,879
Apples, pounds	946
Grapes, pounds	36,000
Plums, pounds	198
Thyme, pounds	181
String beans, pounds	1,983
Peaches, pounds	94
Cucumbers, dozen	37
Green corn, dozen	36
Chickens, dozen	27
Eggs, dozen	1,094
Milk, gallons	21,942
Hay, tons	40
Pork—sold 25,845 pounds	$985 85

TABLE I.

Showing the counties from which three hundred and forty-six patients were admitted, from July 1, 1885, to July 1, 1886.

COUNTIES.	Males.	Females.	Total.
Alameda	4	4	8
Colusa	5	4	9
Contra Costa		1	1
Humboldt	3	2	5
Kern	1		1
Lake	3		3
Los Angeles	1	3	4
Marin	7	1	8
Mendocino	10		10
Modoc	1		1
Monterey		1	1
Napa	12	8	20
Nevada	1	1	2
Placer	1		1
Sacramento	10	2	12
San Benito	1		1
San Diego	3	1	4
San Francisco	75	96	171
San Luis Obispo	2	2	4
San Mateo	2	2	4
Santa Barbara	3	2	5
Santa Clara		1	1
Santa Cruz	7	4	11
Solano	17	7	24
Sonoma	10	7	17
Sutter		1	1
Tehama	2	2	4
Ventura	6		6
Yolo	3	2	5
Yuba		2	2
Totals	190	156	346

TABLE II.

Showing the nativity of three hundred and forty-six patients, admitted from July 1, 1885, to July 1, 1886.

NATIVITY.	Males.	Females.	Total.
United States.			
California	23	21	44
Colorado	1	--------	1
Connecticut	2	--------	2
Illinois	4	2	6
Indiana	2	--------	2
Iowa	4	2	6
Kentucky	1	2	3
Louisiana	--------	1	1
Maine	5	1	6
Maryland	--------	1	1
Massachusetts	7	3	10
Michigan	1	2	3
Missouri	6	2	8
New Jersey	6	--------	6
New Hampshire	2	2	4
New York	8	10	18
North Carolina	--------	1	1
Ohio	9	3	12
Pennsylvania	1	3	4
South Carolina	1	--------	1
Tennessee	4	1	5
United States	7	6	13
Vermont	1	--------	1
Virginia	2	2	4
Wisconsin	2	2	4
Totals	99	67	166
Foreign Countries.			
Canada	4	--------	4
Chili	1	--------	1
China	4	--------	4
Denmark	1	--------	1
England	6	3	9
France	3	5	8
Germany	12	17	29
Holland	1	1	2
Hungary	--------	1	1
Ireland	21	36	57
Italy	3	3	6
Mexico	1	--------	1
New Brunswick	--------	2	2
Newfoundland	--------	1	1
Norway	2	--------	2
Nova Scotia	--------	5	5
Poland	1	--------	1
Prussia	4	--------	4
Scotland	4	2	6
South America	1	--------	1
Spain	1	--------	1
Sweden	5	2	7
Switzerland	3	4	7
Unknown	11	5	16
Wales	2	1	3
Totals	91	88	179
Territories.			
Washington Territory	--------	1	1

RECAPITULATION.

NATIVITY.	Males.	Females.	Total.
United States	99	67	166
Foreign countries	80	83	163
Territories		1	1
Unknown	11	5	16
Totals	190	156	346

TABLE III.

Showing the ages of three hundred and forty-six patients at the time of their admission into the Asylum, from July 1, 1885, to July 1, 1886.

AGES.	Males.	Females.	Total.
Between 10 and 20 years	9	10	19
Between 20 and 30 years	43	35	78
Between 30 and 40 years	49	33	82
Between 40 and 50 years	36	48	84
Between 50 and 60 years	26	16	42
Between 60 and 70 years	12	8	20
Between 70 and 80 years	2	1	3
Between 80 and 90 years	3	1	4
Unknown	10	4	14
Totals	190	156	346

TABLE IV.

Showing the supposed cause of insanity in three hundred and forty-six patients, as stated in commitments, from July 1, 1885, to July 1, 1886.

SUPPOSED CAUSES.	Males.	Females.	Total.
Business troubles	5		5
Change of life		5	5
Child birth		9	9
Death of children		3	3
Death of husband		2	2
Death of wife	1		1
Disappointment in love	1		1
Domestic trouble	2	7	9
Epilepsy	4	2	6
Hereditary	7	9	16
Ill health	7	6	13
Injury to head	6	2	8
Intemperance	17	9	26
Jealousy		1	1
Loss of property	4	4	8
Masturbation	32		32
Nostalgia		1	1
Old age	2	1	3
Overwork	2		2
Paralysis	1	1	2
Pregnancy		2	2
Puerperal condition		1	1
Religion	3	9	12
Spiritualism	1	1	2
Carried forward	95	75	170

TABLE IV—Continued.

SUPPOSED CAUSES.	Males.	Females.	Total.
Brought forward	95	75	170
Sunstroke	1		1
Suppressed menstruation		4	4
Syphilis	3		3
Unknown	89	68	157
Use of opium	2		2
Uterine troubles		9	9
Totals	190	156	346

TABLE V.

Showing the class of insanity of three hundred and forty-six patients, as stated in commitments, from July 1, 1885, to July 1, 1886.

CLASS.	Males.	Females.	Total.
Dementia	28	16	44
Mania	105	105	210
Melancholia	10	12	22
Monomania	12	9	21
Puerperal mania		4	4
Senile dementia	2	1	3
Unknown	33	9	42
Totals	190	156	346

TABLE VI.

Showing the civil condition of three hundred and forty-six patients, admitted from July 1, 1885, to July 1, 1886.

CIVIL CONDITION.	Males.	Females.	Total.
Divorced		1	1
Married	54	91	145
Single	120	43	163
Unknown	10	4	14
Widows		17	17
Widowers	6		6
Totals	190	156	346

TABLE VII.

Showing the occupation of three hundred and forty-six patients, admitted from July 1, 1885, to July 1, 1886.

Occupation.	Males.	Females.	Total.
Agents	3		3
Artists		1	1
Assayers	1		1
Bakers	2		2
Barbers	1		1
Blacksmiths	6		6
Bookkeepers	3		3
Bootblacks	1		1
Butchers	2		2
Carpenters	2		2
Cigar makers	1		1
Clerks	6		6
Convicts	5		5
Cooks		2	2
Dairymen	1		1
Dentists	1		1
Domestics		18	18
Dressmakers		3	3
Editors	1		1
Engineers	1		1
Farmers	20		20
Fishermen	1		1
Harness makers	1		1
Hostlers	1		1
Housewives		93	93
Laborers	64		64
Laundrymen	1		1
Lawyers	3		3
Lithographers	1		1
Machinists	1		1
Merchants	2		2
Millers	1		1
Miners	4		4
No occupation	13	28	41
Painters	3		3
Peddlers	2		2
Physicians	1		1
Plumbers	1		1
Porters	2		2
Printers	4		4
Sailors	7		7
Saloon keepers	2		2
Servants		6	6
Sheepherders	1		1
Ship carpenters	1		1
Shoemakers	2		2
Soldiers	1		1
Stable keepers	1		1
Stenographers	1		1
Students	1	1	2
Tailors	1		1
Teachers	1		1
Unknown	7	3	10
Upholsterers		1	1
Waiters	1		1
Totals	190	156	346

TABLE VIII.

Showing the cause of death of one hundred and thirteen patients, from July 1, 1885, to July 1, 1886.

Month.	Cause of Death.	Nativity.	Age.	Males.	Females.
July, 1885	Exhaustion	England	65		1
July, 1885	General paresis	England	43	1	
July, 1885	Exhaustion	England	49	1	
July, 1885	Paralysis	Scotland	45	1	
July, 1885	Intestinal obstruction	Ireland	61		1
July, 1885	Organic disease of brain	Ohio	65	1	
July, 1885	Organic disease of brain	Pennsylvania	38	1	
July, 1885	Consumption	Germany	25		1
July, 1885	General paresis	Illinois	36	1	
July, 1885	General paresis	Spain	30	1	
July, 1885	Maniacal exhaustion	Italy	36		1
August, 1885	Maniacal exhaustion	Austria	36		1
August, 1885	Peritonitis	New York	33	1	
August, 1885	Consumption	United States	44	1	
September, 1885	Consumption	Ireland	32	1	
September, 1885	Paralysis	France	45	1	
September, 1885	Epilepsy	California	18	1	
September, 1885	Organic disease of brain	England	36	1	
September, 1885	Paralysis	New Brunswick	42	1	
September, 1885	Consumption	China	34		1
September, 1885	Dysentery	Prussia	66	1	
September, 1885	Epilepsy	California	16		1
September, 1885	Organic disease of brain	Denmark	50	1	
September, 1885	Old age	France	80		1
September, 1885	Impaction of food	Sweden	28	1	
October, 1885	Pulmonary congestion	Azores Islands	45	1	
October, 1885	Organic disease of brain	New York	40	1	
October, 1885	Maniacal exhaustion	Ireland	43		1
October, 1885	Consumption	Australia		1	
October, 1885	Tonsillitis	Bavaria	47	1	
October, 1885	Organic disease of brain	Maryland	50	1	
October, 1885	Organic disease of brain	Massachusetts	53	1	
October, 1885	Paralysis	Pennsylvania	36	1	
October, 1885	Paralysis	Wales	38	1	
October, 1885	Paralysis	Ireland	46	1	
November, 1885	Organic disease of brain	North Carolina	38	1	
November, 1885	Exhaustion	Newfoundland	40		1
November, 1885	Paralysis	France	46	1	
November, 1885	Consumption	Germany	59		1
December, 1885	Paralysis	Sweden	34	1	
December, 1885	Consumption	England	34	1	
December, 1885	Paralysis	United States	50	1	
December, 1885	Paralysis	Italy	42	1	
December, 1885	Paralysis	Ohio	32	1	
December, 1885	Paralysis	Italy	35	1	
December, 1885	Epilepsy	California	23	1	
December, 1885	Old age	New Brunswick	72	1	
December, 1885	Exhaustion	Ireland	42		1
December, 1885	Suicide	Ireland	40	1	
December, 1885	Paralysis	England	44	1	
December, 1885	Consumption	Maine	35		1
January, 1886	Paralysis	Greece	39	1	
January, 1886	Exhaustion	Ireland	49		1
January, 1886	Exhaustion	Sweden	42	1	
January, 1886	Exhaustion	China	31	1	
January, 1886	Organic disease of brain	Switzerland	33	1	
January, 1886	Effects of burn	Massachusetts	49		1
January, 1886	Organic disease of brain	Ireland	53	1	
January, 1886	Organic disease of brain	France	37	1	
January, 1886	Epilepsy	Sweden	42	1	
January, 1886	Maniacal exhaustion	Unknown	35	1	
January, 1886	Consumption	Ireland	45		1
January, 1886	Consumption	Ireland	25	1	
January, 1886	Paralysis	Maryland	36		1
January, 1886	Consumption	Ireland	38		1

TABLE VIII—Continued.

Month.	CAUSE OF DEATH.	Nativity.	Age	Males	Females
January, 1886	Heart disease	Ireland	51		1
February, 1886	Maniacal exhaustion	Germany	41	1	
February, 1886	Consumption	Louisiana	30		1
February, 1886	Pericarditis	Ireland	57	1	
February, 1886	Old age	France	71		1
February, 1886	Epilepsy	Ireland	43		1
February, 1886	Paralysis	Holland	33	1	
March, 1886	Paralysis	Canada	35	1	
March, 1886	Consumption	Ireland	29		1
March, 1886	Paralysis	France	52	1	
March, 1886	Paralysis	New Brunswick	56		1
March, 1886	Organic disease of brain	Norway	51	1	
March, 1886	Organic disease of brain	Unknown		1	
March, 1886	Exhaustion	Nevada	19		1
March, 1886	Paralysis	Germany	51	1	
March, 1886	Consumption	Switzerland	27	1	
March, 1886	Maniacal exhaustion	Italy	29		1
March, 1886	Organic disease of brain	Ireland	61		1
March, 1886	Organic disease of brain	Ireland	54	1	
March, 1886	Consumption	Sweden	36	1	
March, 1886	Apoplexy	New York	65	1	
March, 1886	Suicide	Ohio	64		1
March, 1886	Epilepsy	California	23	1	
March, 1886	Maniacal exhaustion	Switzerland	25		1
April, 1886	Exhaustion	Mexico	37	1	
April, 1886	Paralysis	Ireland	44	1	
April, 1886	Paralysis	United States	38	1	
April, 1886	Old age	Maine	87	1	
April, 1886	Organic disease of brain	Ireland	43	1	
April, 1886	Suicide	Massachusetts	53		1
April, 1886	Organic disease of brain	Ireland	46		1
April, 1886	Congestion of lungs	Ireland	41	1	
April, 1886	Consumption	Mexico		1	
April, 1886	General paralysis	New Hampshire	48	1	
April, 1886	Paralysis	Portugal	40	1	
April, 1886	Paralysis	Ireland	34	1	
April, 1886	Pneumonia	Ireland	43	1	
May, 1886	Paralysis	Switzerland	35		1
May, 1886	Organic disease of brain	New York	64	1	
May, 1886	Organic disease of brain	Illinois	40		1
June, 1886	Consumption	California	34	1	
June, 1886	Organic disease of brain	Sweden	45		1
June, 1886	Epilepsy	California	16		1
June, 1886	Epilepsy	Ireland	47	1	
June, 1886	Consumption	New York	34	1	
June, 1886	Exhaustion	Nova Scotia	46		1
June, 1886	Paralysis	Ireland	42	1	
June, 1886	Consumption	China	42	1	

TABLE IX.

Recapitulation of the causes of death of one hundred and thirteen patients, from July 1, 1885, to July 1, 1886.

Cause of Death.	Males.	Females.	Total.
Consumption	11	8	19
Epilepsy	5	3	8
Exhaustion	4	6	10
General paresis	4	-------	4
Maniacal exhaustion	2	5	7
Old age	2	2	4
Organic disease of brain	16	4	20
Paralysis	23	3	26
All other causes	10	5	15
Totals	77	36	113

TABLE X.

Showing the articles made in the sewing-room, from July 1, 1885, to July 1, 1886.

Articles.	Number.
Aprons	966
Bath towels	481
Bed ticks	68
Bibs	6
Brown sheets	2,168
Bed napkins	168
Carpet mats	32
Check jackets	50
Chemises	479
Canvas mats	9
Counterpanes	117
Canton flannel shirts	341
Drawers	371
Dresses	436
Demming skirts	12
Demming sacques	9
Duck jackets	9
Flannel skirts	318
Flannel shirts	24
Linen table cloths	62
Mattresses	129
Napkins	12
Night gowns	357
Pants	38
Quilts	20
Pillow slips (check)	282
Pillow slips (white)	1,115
Pillow ticks	12
Roller towels	482
Sacques	73
Shrouds	63
Skirts (check)	18
Sun bonnets	157
Suspenders	48
Waterproof capes	93

STEWARD'S REPORT.

TABLE FIRST.

Amount of articles purchased and consumed, and other expenses, for the fiscal year ending June 30, 1886.

Articles.	Value.
Flour	$10,224 70
Meat	26,752 17
Sugar	4,331 91
Tea	1,097 67
Syrup	1,234 69
Potatoes	1,973 00
Butter	8,677 13
Coffee and chicory	1,609 30
Lard	47 31
Fish	645 45
Poultry and eggs	2,359 85
Beans	771 93
Rice and cracked wheat	948 74
Cornmeal and oatmeal	1,202 67
Fruit	270 45
Vegetables	11 90
Salt	154 52
Vinegar and pickles	228 67
Small groceries	1,232 80
Soap	1,570 54
Drugs	1,719 70
Liquor and ale	351 87
Tobacco	1,690 46
Dry goods	5,242 15
Clothing and hats	4,016 70
Shoes and leather	2,266 78
Blankets	1,206 45
Furniture and crockery	1,043 68
Hardware and tinware	2,012 16
Spoons and cutlery	54 74
Carpeting	1,288 40
Hay	1,580 48
Grain and feed	1,774 32
Garden tools and seed	166 31
Lumber	784 41
Building and repairs	695 43
Brooms and brushes	549 33
Books and stationery	324 26
Gas	1,879 81
Paints, oil, and glass	618 32
Fuel	12,392 13
Bedding	1,379 99
Castings, pipe, and iron	872 81
Payroll	79,741 54
Returned escapes	193 95
Discharged patients	442 10
Trustees' services and mileage	678 60
Telegraphing, postage, freight, and expressage	407 67
Ice	149 64
Exchange on coin	143 86
Advertising	300 00
Clothes baskets	58 50
Drain tile	24 85
Rubber hose	83 00
Gopher exterminator	10 00
Amount carried forward	$191,489 80

TABLE FIRST—Continued.

Article.	Value.
Amount brought forward	$191,489 80
Gasometer and fixtures	1,220 00
Steel boilers	2,703 00
Doctoring horse	20 00
Labor	25 00
Repairing steam pump	150 00
Electrical supplies	21 75
Electrical clock	800 00
Surgical chair	60 00
Harness	30 00
Polyoptican	5 50
Trees and vines	9 35
Washing machines	364 75
Daily Chronicle and Register	10 40
Hay press	350 00
Miscellaneous	691 97
Total	$197,951 52

TABLE SECOND.

Showing the cost of the different departments for the fiscal year ending June 30, 1886.

Departments.	Cost.
Kitchen and dining rooms	$52,620 69
Wards	18,115 33
Bakery	10,331 57
Laundry	1,064 51
Engine room	146 29
Farm, garden, dairy, and stable	4,682 73
Trustees' services	678 60
Repairs	3,860 66
Drug store	1,860 24
Furnishing	5,370 38
Center building	1,285 01
Office	789 37
Discharged patients	442 10
Returned escapes	193 95
Gas	1,879 81
Fuel	12,338 87
Grounds	83 00
Payroll	79,741 54
Comb's ranch	245 05
Night watch	77 98
Tin shop	703 08
Advertising	300 00
Miscellaneous	1,140 76
Total	$197,951 52

TABLE THIRD.

Disbursements for the fiscal year ending June 30, 1886.

FOR WHAT PURPOSE.	Amount.
Maintenance	$192,581 14
Furnishing	5,370 38
Total	$197,951 52

TABLE FOURTH.

Averages for the fiscal year ending June 30, 1886.

MONTHS.	Average Number of Patients Daily	Average Daily Expense	Average Cost per Capita per Day	Average Cost per Capita per Month
July, 1885	1,404	$501 32	$0 35$\frac{7}{10}$	$11 07
August, 1885	1,398	508 54	36$\frac{4}{10}$	11 28
September, 1885	1,402	499 15	35$\frac{6}{10}$	10 68
October, 1885	1,405	543 71	38$\frac{7}{10}$	12 00
November, 1885	1,414	566 44	40	12 00
December, 1885	1,412	569 07	40$\frac{3}{10}$	12 49
January, 1886	1,414	540 52	38$\frac{2}{10}$	11 84
February, 1886	1,418	558 39	39$\frac{4}{10}$	11 03
March, 1886	1,417	530 33	37$\frac{4}{10}$	11 59
April, 1886	1,405	544 19	38$\frac{7}{10}$	11 61
May, 1886	1,406	498 59	35$\frac{5}{10}$	11 01
June, 1886	1,424	473 28	33$\frac{2}{10}$	9 96
Yearly averages	1,410	$527 79$\frac{4}{10}$	$0 37$\frac{4}{10}$	$11 38

TABLE FIFTH.

Products of the farm, garden, and dairy for the fiscal year ending June 30, 1886.

Articles.	Amount.
Cabbage, pounds	112,993
Beets, pounds	7,769
Turnips, pounds	46,131
Onions, pounds	37,539
Cauliflower, pounds	2,452
Celery, pounds	1,173
Radishes, pounds	3,191
Oyster plant, pounds	332
Lettuce, pounds	6,567
Red peppers, pounds	998
Carrots, pounds	22,733
Tomatoes, pounds	35,226
Parsley, pounds	50
Summer squash, pounds	15
Green peas, pounds	1,085
Sweet potatoes, pounds	1,245
Asparagus, pounds	2,920
Apples, pounds	2,367
Grapes, pounds	16,000
Plums, pounds	353
String beans, pounds	5,428
Peaches, pounds	1,369
Blackberries, pounds	613
Apricots, pounds	571
Figs, pounds	10
Okra, pounds	525
Almonds, pounds	11
Rhubarb, pounds	57
Milk, gallons	25,313
Hay, tons	150
Eggs, dozen	1,806
Chickens, dozen	23
Green corn, dozen	20
Cucumbers, dozen	3
Calves sold, six	$30 00

REPORT OF THE TRUSTEES

OF THE

CALIFORNIA HOSPITAL FOR THE CHRONIC INSANE,

At Agnew's, Santa Clara County, California.

DECEMBER 15, 1886.

SACRAMENTO:
STATE OFFICE........JAMES J. AYERS, SUPT. STATE PRINTING.
1886.

OFFICERS OF THE HOSPITAL.

TRUSTEES:

J. F. CUNNINGHAM, Chairman	Felton.
J. W. GALLY	Watsonville.
C. H. MADDOX	San José.
H. H. MAIN	San José.
Dr. W. S. THORNE	San José.

SECRETARY AND TREASURER:

L. G. NESMITH	San José.

REPORT.

To his Excellency, Governor George Stoneman:

Sir: In accordance with an Act entitled "An Act to provide an additional asylum for the insane of the State of California," approved March 9, 1885, the Governor appointed five Commissioners to select and locate a site for the proposed asylum. After duly examining the various eligible locations in different parts of the State, a tract of two hundred and seventy-six acres, at Agnew's Station, Santa Clara County, was selected by the Commissioners as most desirable, on account of accessibility, railway facilities, water supply, and salubrity of climate. For this tract of land the sum of $55,000 was paid. During the month of October, 1885, his Excellency appointed five Trustees, as duly empowered by Section 6 of said Act. The Trustees thus appointed, after duly qualifying, met on the second day of November, 1885, in the City of San José, and effected a permanent organization by the selection of a Chairman and Secretary. As soon as practicable thereafter the Board thus organized proceeded, by and with the assistance of a competent architect and the Medical Superintendents of the State Asylums at Napa and Stockton, to prepare plans, drawings, and specifications, for the construction of the California Hospital for the Chronic Insane, as directed by Section 7 of said Act.

As soon as the plans, drawings, and specifications of the said Hospital had been duly examined and approved by the said Board of Trustees, the Advisory Committee of Napa and Stockton, and the State Board of Examiners at Sacramento, the Board of Trustees proceeded to advertise for bids for the construction of certain buildings for the California Hospital for the Chronic Insane, according to Section 3 of an Act entitled "An Act to regulate contracts on behalf of the State in relation to erections and buildings." At the expiration of the said time prescribed by law, namely, on the twenty-third day of April, 1886, bids were received for the construction of two ward buildings and the walls and roof of a kitchen building, as specified in the advertisement for bids. On subsequent consultation with, and by the advice of the State Board of Examiners, this first bid was rejected, and the Board proceeded to advertise for bids for the construction of one ward building, a kitchen building, boiler and engine house, and laundry and bakery building, complete. These bids were duly received and opened on the twelfth day of July, 1886, in the City of San José, and the contract was awarded to the lowest responsible bidder, in the sum of $168,800. The delay thus occasioned in awarding the contract was unfortunate, as it endangered the completion of the buildings before the setting in of the Winter season.

As soon as possible after the approval of the contract, as aforesaid, the grading and leveling of the foundations for the proposed buildings was begun. This work has been prosecuted with such vigor that at the present time the walls and roofs of the boiler and engine house, bakery and laundry building, and kitchen building, are completed, and the foundation of the ward building laid, and the walls carried up as far as the second story. Referring to the kitchen building, boiler and engine house, and bakery and laundry building, these various buildings have been constructed on a scale to furnish accommodations for over fifteen hundred patients, so that in the future it will simply be necessary to add ward buildings, or living accommodations, in order to increase the capacity of the hospital. This plan was deemed the most economical, as in the end it would be much cheaper to have the said buildings thus originally constructed than to add to them or increase their capacity in the future.

The amount of money available for the work of construction and administration, and the management and improvement of the grounds, was $195,000. For detailed statement of expenditures, see report of Treasurer herewith attached. The asylum at Agnews will be ready for furnishing by the first of March, 1887. For estimated cost of furnishing the buildings of the hospital now being erected, with essentials necessary for the reception of patients, and for the erection of further ward buildings deemed absolutely necessary, and also for the maintenance of the hospital for the succeeding two years, the construction of sewers and sanitary improvement of the grounds, your Excellency is referred to detailed statement of estimates hereto appended.

In the prosecution of the work necessary to meet the actual increase of the insane element of this State, it is earnestly recommended to your Excellency the necessity of an appropriation of $534,100, for the carrying out of the work as designated in the detailed statement heretofore referred to. The urgency of this appeal is rendered more emphatic by reason of the fact that the asylums at Napa and Stockton are enormously overcrowded, and that the simple reduction of these institutions to their normal accommodating capacity, will fill all the buildings now being erected as well as the additional ward buildings as proposed. Hence, to relax more extended provision for accommodation at Agnew's, is to repeat the injustice and incur the dangers that beset overcrowding beyond sanitary limits, in hospitals for the insane.

Very respectfully,

J. F. CUNNINGHAM,
J. W. GALLY,
H. H. MAIN,
W. S. THORNE,
Trustees.

STATEMENT OF ESTIMATES.

Sewers	$20,000 00
Three ward buildings	226,000 00
Tunnel and stack	5,000 00
Engine and boiler	5,000 00
Kitchen furniture	5,000 00
Furnishing for patients	16,000 00
Gas machinery and fixtures	5,000 00
Laundry machinery	2,500 00
Heating	3,000 00
Laundry floor	600 00
Carpenter shop and morgue	3,500 00
Connecting corridors	5,000 00
Improvement of grounds	15,000 00
Subsistence	146,000 00
Cows and other live stock	1,500 00
Salaries of officers and attendants for two years	75,000 00
Total	$534,100 00

To the honorable Board of Trustees of the California Hospital for the Chronic Insane:

Herewith find statement of expenditures, etc., to November 30, 1886.

Farm and Grounds.		
Live stock, including poultry		$1,240 83
Farming implements, including wagons, etc.		970 30
Supplies, such as wire fences, lumber, iron, furniture and fixtures, kitchen utensils, etc.		1,516 56
Expense, insurance, and sundry expenses		526 68
Supplies proper, provisions, fuel, and provender		1,610 28
Payroll of farm		2,838 54
		$8,703 19
Expenses of Administration.		
Traveling expenses of Trustees, salary of Secretary, furnishing and rent of office, etc.		3,721 72
Building Expenses.		
Pay of Architect and Superintendent of Construction, etc.		7,319 21
Contract on Buildings.		
First payment	$12,450 90	
Second payment	20,032 33	
Third payment	18,239 52	
Fourth payment	23,131 25	
Fifth payment	47,253 00	
		121,107 00
Total		$140,851 12

Contingent Fund—Receipts.

For pasturage	$184 82
For hay sold	466 20
For wood sold	38 00
For fruit and produce sold	89 25
For sundries	155 85
	$934 12
Less expenditures	117 50
Cash on hand	$816 62

Farm Produce on hand, as per statement of Superintendent of Grounds.

Hay, value about	$1,125 00
Straw, value about	4 00
Corn, value about	10 00
Beans, value about	25 50
Barley, value about	45 00
Total	$1,209 50
Due for produce sold, but bills not yet collected	$51 71

Respectfully submitted.

L. G. NESMITH, Secretary.

SAN JOSÉ, CAL., December 15, 1886.

NINTH BIENNIAL REPORT

OF THE

STATE BOARD OF HEALTH

OF

CALIFORNIA,

For the Fiscal Years from June 30, 1884, to June 30, 1886.

SACRAMENTO:
STATE OFFICE. . . . . JAMES J. AYERS, SUPT. STATE PRINTING.
1886.

MEMBERS OF THE CALIFORNIA STATE BOARD OF HEALTH.

President.	
HENRY S. ORME, M.D.	Los Angeles.
Secretary.	
GERRARD G. TYRRELL, M.D.	Sacramento.
W. R. CLUNESS, M.D.	Sacramento.
R. BEVERLY COLE, M.D.	San Francisco.
JAMES SIMPSON, M.D.	San Francisco.
J. M. BRICELAND, M.D.	Shasta.
H. C. CROWDER, M.D.	Williams.

STANDING COMMITTEES OF THE STATE BOARD OF HEALTH.

1. *On the Salubrity of Public Institutions, Schools, Hospitals, Prisons, Factories, etc.,*

Doctors COLE, ORME, and SIMPSON.

2. *On Statistics relating to Life and Health, Modes of Employment and of Living, and the Comparative Healthfulness of different localities,*

Doctors CLUNESS, BRICELAND, and TYRRELL.

3. *On Intoxicating Liquors, Inebriate Asylums, Pathological Influence of Alcohol, etc.,*

Doctors SIMPSON, COLE, and CROWDER.

4. *On Influence of Irrigation, Tree Planting, etc.,*

Doctors CROWDER, ORME, and CLUNESS.

5. *On Legislative Business,*

Doctors BRICELAND, ORME, and TYRRELL.

On these Committees the Secretary of the Board is ex officio a member.

REPORT

OF THE

STATE BOARD OF HEALTH.

REPORT OF THE BOARD.

To his Excellency GEORGE STONEMAN, *Governor of California:*

The State Board of Health, in presenting this its ninth biennial report to you and to the Legislature, is glad to be able to say that the sanitary condition of the State for the fiscal year ending June, 1886, has been generally good.

Although threatened, no epidemic disease has invaded our borders.

The Board is now in closer and more regular communication with a greater number of the different municipalities and localities throughout the State, and of the various health organizations of the country, than ever before, and have striven by every means available—having also received the valuable aid of the public press—to keep the people acquainted with the sanitary condition of the State, and at the same time advising them of the importance of studying and observing proper sanitary laws.

The members of your Board have given all the assistance in their power to help bring about this encouraging condition of the public health, and to lay the foundation of future good work. They have been active, harmonious, and zealous in the discharge of their duty.

California was one of the first States in the Union to see the urgent necessity of organizing a State Board of Health, and much good work has been done; but we are forced to admit that California is now far behind some of her sister States in which State Boards of Health are maintained, in failing to have upon her statute books many needed sanitary laws, and having the same carried out by efficacious State aid. As Californians, we are all justly proud of our State, standing, as it does, in the first rank as to intelligence and wealth of her citizens; therefore, such a lax condition of our health laws, so easily remedied, should not be permitted. The State must protect her people in the enjoyment of health and happiness, as well as property. And we are confident that as soon as earnest attention is called to this subject our legislators will quickly place *our State* in the front rank in this as in all other matters appertaining to the public welfare.

As to the financial workings of the Board, the detailed statement of our Permanent Secretary appended, shows that the amount appropriated for the work of the Board has been faithfully and judiciously used; and fortunate has it been for our coast that we have not been visited by any pestilential diseases, such as yellow fever, smallpox, or cholera, during the past two years. If we had been, the limited appropriation at the disposal of this Board, it is feared, would not have been sufficient to have permitted it to maintain such a quarantine as would have proved effective.

QUARANTINE.

The subject of State quarantine is one of primary importance, and should command the earnest attention of the Legislature, as it has so often of this Board. With ocean steamers almost daily arriving from China and Japan, from Australia, Mexico, and Central America; with three lines of transcontinental railroads daily discharging their human freight from all parts of the world into California; with cholera prevalent in Southern Europe; with an ever present danger of yellow fever from Mexico; and of both smallpox and cholera from China and the Indies; the situation calls for prompt and active preventive measures. Quarantine grounds should be provided and suitable buildings erected at some point on the Bay of San Francisco, where the passengers and crews of infected ships could be maintained and the sick provided for until all danger of contagion is past. Quarantine stations should also be provided at the points where each train from the East passes the borders of our State, and a careful examination of all passengers should be there made, and if the presence of contagious disease is discovered, the infected should be detained at the station and the cars thoroughly fumigated before being allowed to proceed. Such a quarantine station was established in 1883 and 1884, by this Board, at Yuma, to prevent the introduction of yellow fever from Mexico, and that such a quarantine may have to be reëstablished on the line of the Southern Pacific Railroad, is by no means improbable. As guardians, therefore, of the public health, we would say that a contingent fund should be placed by the Legislature at the disposal of his Excellency the Governor, to be drawn upon by him only in case of the approach of an epidemic. For as our Permanent Secretary says in his report, "it is incomprehensible how legislators can be so blind to the interests of California, as to refuse this safeguard, upon which depends the commercial prosperity and the individual security of the people."

As is well known, and as will be seen by examining the carefully prepared and very complete report of our Secretary, this Board at the last regular session of the Legislature tried to have passed certain amendments to the "Laws of Health," as laid down in the Political Code, so as to make them effective and of practical benefit to the people. That attempted legislation failed, but we still have hopes that "these most important measures" may, at the next session of the Legislature, find a place among the enacted laws, for we are now more thoroughly convinced than ever of their necessity, etc.

Among a few of the important measures that ought to receive immediate attention is the subject of Vital Statistics.

The Vital Statistics of California are very incomplete, as regards the registration of births, deaths, and marriages. This should not be so, and is especially due to the insufficiency of the law itself. This should be promptly remedied.

A stringent law ought also to be passed forbidding the burial or cremation of human bodies within the limits of this State, without first having obtained a regular permit, signed by the proper official designated by law for that purpose. As it is now, we have no legal means of proving the death of any person (either for the inheritance of property or the detection of crime) who may have died and been buried outside of one of our incorporated cities or towns.

Compulsory vaccination laws, at least so far as regards school children, should be enacted. The importance of thorough vaccination and revaccination of the people, especially on the appearance of an epidemic of smallpox, cannot be questioned.

We have a State Analyst connected with the State University, but without funds it is impossible for him to do the work required by this Board for the benefit of the people of the State at large. The importance of a proper analysis of the mineral waters of the State, both qualitative and quantitative, of the plants, soil, etc., cannot be overestimated.

The State Analyst is ready and willing to undertake the task, but he must have the necessary means to properly pursue this great and important work under the direction of the Board.

The subject of local Boards of Health is very important, and can not be too strongly urged. To allow our fellow creatures to suffer and perish through the neglect of the authorities to provide adequate sanitary measures, and to have the same properly carried out, is a crime against humanity no less culpable than that committed by the assassin. Preventive medicine must and will become the medicine of the future, when we educate the people to appreciate it understandingly, and then local Boards of Health will be made compulsory. Supervisors in every county should be made to appoint Health Officers in every incorporated and unincorporated (where none now exist) city, town, village, and township in the State, and those officers, to make their work efficient and of public benefit, should act in harmony and in conjunction with the State Board of Health. As it is now, we have only eight regularly appointed Boards in the State that are effective and require burial permits. Many of our sister States have given this matter careful attention, and have passed very stringent laws in regard to the appointment of Health Boards and Health Officers, and, especially in times of epidemics, they have done good work. Even now, and for years past, complaints are made to our State Board of the prevalence of disease which can only be remedied—"stamped out"—by local health authorities.

The committees appointed by the Board have made reports which will be found of great practical interest, as also several volunteer papers of inestimable value.

In conclusion, the Board finds it especially gratifying to express its appreciation of the Governor's interest in everything pertaining to the departments of public affairs officially intrusted to our hands. His presence at our regular meetings has encouraged us to persistent effort in the face of difficulties; and the State at large shares with us the obligation due to a service faithfully rendered, from the performance of which the pressure of multifarious duties might reasonably furnish an exemption.

H. S. ORME, M.D., President.
G. G. TYRRELL, M.D., Secretary.
W. R. CLUNESS, M.D.
JAMES SIMPSON, M.D.
R. B. COLE, M.D.
H. C. CROWDER, M.D.
J. M. BRICELAND, M.D.

ABSTRACT OF THE PROCEEDINGS

OF THE

CALIFORNIA STATE BOARD OF HEALTH

AT THE

Quarterly Meetings held during the Thirty-sixth and Thirty-seventh Fiscal Years, ending June 30, 1886.

ABSTRACT OF PROCEEDINGS.

THE REGULAR QUARTERLY MEETING OF THE CALIFORNIA STATE BOARD OF HEALTH,

Was held at the residence of Dr. F. W. Hatch, at the usual hour, July 18. 1884. Present, Dr. Gibbons, Sr., Dr. Cluness, Dr. Hatch, and Dr. Price, the Board's Quarantine Officer, at Yuma, A. T., by invitation.

Dr. Gibbons, President of the Board, in the chair. Dr. Cluness, acting Secretary.

Minutes of last meeting were read and approved.

Communication from M. K. Allen, of the *Sanitary News*, Chicago, Ill., offering to supply each of the members of the Board with a copy of his paper at $1 50 per copy per annum, was read, and, on motion, the Secretary was requested to forward the publisher's price for six copies.

Letter from United States Consul Willard, of Guaymas, transmitting a copy of monthly consular report, was read and placed on file.

Letter from Dr. J. M. Briceland, a member of the Board, was read and placed on file; also, telegram from Dr. Orme, of Los Angeles, expressing his regret at being unable to attend the meeting of the Board.

Memorandum concerning cholera, from the State Board of Health of New York, was read and discussed, Dr. Henry Gibbons taking strong grounds against the general tenor of the views expressed in the paper.

Dr. Handy's letter regarding yellow fever referred to, expressing conviction that the disease mentioned was yellow fever.

Dr. M. F. Price reported regarding the establishment of quarantine at Yuma, stating that owing to certain circumstances cases of yellow fever, if any should occur, would be first discovered in Arizona, and consequently be beyond our jurisdiction.

There being no further business, the Board adjourned.

W. R. CLUNESS, Secretary pro tem.

SPECIAL MEETING OF STATE BOARD OF HEALTH,

Was called and held in the office of the Board at 7:30 P. M., November 22, 1884.

Present—Doctors Orme, W. R. Cluness, H. C. Crowder, and J. M. Briceland.

Dr. G. G. Tyrrell having been appointed by Governor Stoneman a member of the Board, in place of Dr. F. W. Hatch, deceased, presented his credentials, and was invited to a seat in the Board.

The Board then proceeded to reorganize.

Motion was made that Dr. Cluness act as temporary Chairman, and H. C. Crowder as temporary Secretary, which was carried.

Dr. Cluness then informed the Board of the loss it had sustained in the death of its Secretary, Dr. F. W. Hatch, and of its venerable President, Dr. Henry Gibbons, Sr., which necessitated the election of officers to fill their vacant chairs.

Dr. H. S. Orme, of Los Angeles, was placed in nomination by Dr. H. C. Crowder, to fill the office of President, vice Dr. Gibbons, deceased. Dr. Cluness placed in nomination for the same office Dr. R. Beverly Cole, who had been appointed by the Governor in place of Dr. Gibbons, but who had not then signified his acceptance of the position, being absent in San Diego when appointed, and unaware of the fact; consequently he was not present to take his seat.

Upon a ballot being taken, Dr. Orme received three votes, Dr. Cluness one, and Dr. Cole one. Dr. H. S. Orme having received a majority of all the votes cast, was declared elected; and, on motion, his election was made unanimous.

Dr. G. G. Tyrrell was then placed in nomination for the office of Permanent Secretary, and was unanimously elected.

Dr. Cluness then made some feeling remarks upon the death of Doctors Gibbons and Hatch, and the irreparable loss the Board had sustained in their demise.

Dr. H. C. Crowder moved that a committee of three be appointed to prepare an obituary notice of the late Dr. Henry Gibbons and Dr. F. W. Hatch, which was carried.

Drs. Tyrrell, Crowder, and Cluness were appointed that committee, and instructed to have the report published as an addendum to the biennial report of the State Board of Health, about to be published.

Dr. Cluness stated that the quarantine at Fort Yuma had been discontinued, as its necessity no longer existed. Since this action had been taken, Dr. Cluness had seen Dr. Handy, the quarantine officer at Tucson, and learned from him that yellow fever was quite prevalent in Mexico, and of undoubted character, which opinion was confirmed by Dr. Mattas in some conversation had with him on the subject some time previously. Dr. Cluness had also seen a man connected with the mail service, who related several cases that happened between Tucson and Nogales.

Dr. Handy is of the opinion that quarantine should be established at Tucson, and cannot be commenced too soon.

Dr. Cluness, in consideration of the good offices of the Southern Pacific Railroad Company, and Wells, Fargo & Co., in the care exercised by them in keeping yellow fever out of California, moved that the thanks of this Board be extended to the officers and men of the Southern Pacific Railroad Company, and to those of Wells, Fargo & Co., for their prompt action in sustaining the efforts of the California State Board of Health to protect our fair State from the yellow plague, and that the thanks of this Board are especially due to Superintendent John A. Muir and Medical Officer Doctor John C. Handy for the efficient manner in which they carried out the wishes of the Southern Pacific Railroad Company in preserving quarantine on the premises under their jurisdiction. Carried.

Dr. H. C. Crowder moved that this Board accept the action of Drs. Orme and Cluness in raising the quarantine at Fort Yuma. Carried.

The Secretary was instructed to look after the quarantine bill which was introduced at the last meeting of the Legislature, and especially congressional legislation for quarantine ground in the Bay of San Francisco.

Dr. Cluness moved that a circular be issued by the Board, relative to the necessity of general vaccination, in anticipation of an epidemic of smallpox, which may be expected upon this coast at no distant day. Carried.

It was moved and seconded that the salary of Permanent Secretary for the past month be drawn in favor of Dr. W. R. Cluness, Acting Secretary, for the period from October 16 to November 22, 1884. Carried.

There being no further business, upon motion the Board adjourned, to meet in regular session, January, 1885.

GERRARD G. TYRRELL,
Permanent Secretary.

Regular Quarterly Meeting California State Board of Health.

Was held in the office of the Secretary January 15, 1885.

Present—Dr. H. S. Orme, President; Doctors Cluness, Crowder, Briceland, Cole, Simpson, and Tyrrell, members; and by invitation, his Excellency Governor Stoneman, Rev. J. H. C. Bonté, Secretary University of California, Senator A. W. Saxe, Dr. W. B. May, and Hon. E. W. Maslin.

The minutes of the last meeting having been read and approved.

Doctors Cole and Simpson having been appointed by the Governor members of the Board, presented their commissions, and were cordially welcomed to their seats.

The subject of quarantine in the Bay of San Francisco, and the necessity of legislative action in furtherance of that object, was then discussed.

Dr. Simpson gave a synopsis of the endeavors had from time to time to obtain quarantine in San Francisco Bay, and mentioned among other things that probably the sum of $600,000 would be appropriated by Congress for sanitary purposes, and that by well directed and persistent efforts a portion of that sum might be obtained by the Board for the use of San Francisco.

Dr. R. B. Cole thought that the necessity for quarantine should be first discussed.

Dr. H. S. Orme replied, that in former meetings of the Board the matter had been fully considered, and the necessity of quarantine determined upon.

His Excellency Governor Stoneman gave a short history of the measures introduced into the last Legislature by his direction, both for an hospital for the insane and for efficient quarantine, and their failure of passage, either through the apathy or indifference of those to whom these measures were intrusted. The Governor spoke very favorably of Angel Island as a suitable place for quarantine purposes.

Dr. R. B. Cole, in expressing his opinion upon the subject, thought that upon proper representation to the United States Government, it would set apart sufficient land from its reserves to subserve the purpose of quarantine in San Francisco Bay, and that this Legislature should be asked for an appropriation for the purpose of erecting suitable buildings upon the land, and not only should this appropriation be large enough to erect these buildings, but in sufficient amount to quarantine the whole State, if such action should become necessary. He therefore moved that a committee of three be appointed, who shall take such bills as have been presented to the Legislature upon the subject of State quarantine, and draft from them and engraft upon them such measures as will accomplish the purposes desired.

Dr. Jas. Simpson was of the opinion that the better way to obtain the means of carrying out the desire of the Board, would be to get the sum required put into the general appropriation bill, and draft a bill after the design of the quarantine bill of New York, which was most carefully drawn.

and present it to the Legislature. He also thought it most important that the subject be urged upon Congress, as it is through it alone that land can be procured for the purpose named; and, in furtherance of this object, thought that a member of this Board ought to be sent upon this special mission to Washington, to confer with the authorities there, and impress our representatives with the urgent necessity that exists for prompt action in the premises.

The Secretary was then instructed to read the report of the Commissioners ordered by President Hayes, consisting of Colonel Chas. Sutherland, Surgeon U. S. A., John Van Sant, U. S. M. H. S., and G. W. Woods, Surgeon U. S. N., to investigate the existing quarantine regulations of the port of San Francisco, and also to consider the recommendation for a suitable site for the establishment of a national quarantine station, should such station be deemed necessary. When the reading was finished, Dr. Briceland made some remarks upon the subject, and took occasion to recapitulate and eulogize the work of the late Secretary, Dr. F. W. Hatch, in the pursuance of the question of quarantine, and assured the Board that they would find it no easy matter to convince legislators of the necessity of protection from disease. When in the Legislature himself he succeeded in getting plenty of promises of help, but when the time for action came opinion changed, and the thought was that when disease did come it was time enough to do something to arrest it. He, however, congratulated the Board in having as a friend, such an efficient colaborer in the field of science as Senator Saxe, from Santa Clara, whom he was happy to see present with us to-night. He was an intelligent, honest man, that appreciated the necessities of effective guards against disease, and with his aid the Board might, perhaps, hope to gain those concessions to science and good government which had hitherto been denied them. He therefore asked Dr. Saxe, Senator from Santa Clara, to express his views upon the question of quarantine, as he believed that we are threatened with severe epidemic disease in the coming Summer, and that now is the time to prepare for it.

Dr. R. Beverly Cole seconded the desire to hear from Dr. Saxe, and also thought that now was the time for action. He appreciated the difficulty of getting an appropriation from the Legislature, but believed that with the coöperation of Dr. Saxe such an appropriation will be made.

Senator Saxe, in response, then briefly expressed his views, and assured the Board of his earnest sympathy in all matters appertaining to the health of the State. The matter of quarantine is attracting the attention of the entire country, and suggested that a bill be presented providing that all lepers imported into this State should, within six months of their discovery, be returned to the place from which they came, at the expense of the State. Provision, he thought, should be made not only for local quarantine, but means should be taken to arrest disease upon the borders of the State, or wherever else within its boundaries it may appear. For his own part he was most willing to coöperate with the Board, and introduce and urge any bill upon the subject which they desired.

Governor Stoneman, after some remarks upon the subject of quarantine, favored the Board with an extract from his coming message to the Legislature upon this very question, and in it strongly urged the necessity of protecting this coast from infection from foreign nations and adjoining territories, and recommended an appropriation from the Legislature for that purpose.

Dr. Cole's motion was then put and carried unanimously.

Dr. Orme appointed Doctors Cole, Simpson, and Cluness the committee.

Dr. H. C. Crowder moved that a committee be appointed to confer with the local Board of Health of San Francisco upon the general quarantine bill, and invite their coöperation in aiding its passage and carrying out its provisions; it was also suggested by Governor Stoneman that the support of the Board of Trade, Chamber of Commerce, and other similar organizations be enlisted in furtherance of the perfection and passage of such bill or bills.

The motion was carried unanimously.

Dr. Crowder then moved that the committee already named to prepare the bill, be the committee to interview and secure the coöperation of the San Francisco Board of Health, and other organizations interested in the sanitary welfare of the State. Carried.

Dr. W. B. May was quite interested in the matter of quarantine, and was pleased to say that he would gladly coöperate with the Board in any legislative action they might deem best for the safety of the State.

Dr. R. B. Cole moved that the locality named by the Commission ordered by President Hayes, viz.: the cove to the north of Peninsula Point, in Raccoon Straits, be the preference of this Board, which was carried.

Dr. James Simpson moved that it is the sense of this Board that an appropriation of not less than $50,000 be made for the purpose of preventing the introduction and spread of disease in our midst, by the erection of suitable quarantine buildings, the establishment of efficient quarantine where needed, and any other measures necessary for the maintenance of public health, and the due efficiency of the State Board of Health, which was carried unanimously.

On motion, the Secretary was instructed to confer with the Hon. E. W. Maslin upon the amendment of the law relating to births, marriages, and deaths, whereby it may be made efficient, and answer the purpose for which it was designed.

The Rev. J. H. C. Bonté, Secretary to the University of California, proposed that if we succeeded in having a State Analyst appointed, as suggested by the Board, or one to whom the chemical examination of adulterated food or drugs, or the mineral waters of the State, be referred for analysis, that the Chemist of the University of California would undertake that duty, under instruction from the State Board of Health, through its Secretary.

The members of the State Board were agreed upon the necessity of such an officer, and thanked Mr. Bonté for the suggestion offered.

The Secretary was also instructed to confer with Mr. Maslin upon the preparation of a bill to be introduced into the Legislature, making vaccination compulsory upon the children before entering the public schools of the State.

There being no further business, upon motion, the meeting then adjourned.

GERRARD G. TYRRELL,
Permanent Secretary.

The Regular Quarterly Meeting of the State Board of Health,

Was held in Sacramento, April 18, 1885, at the hour of 8 o'clock P. M.

Present—Dr. H. S. Orme, President; Doctors Cole, Cluness, and Tyrrell; and, by invitation, his Excellency Governor Stoneman and Hon. E. W. Maslin.

The minutes of the last meeting having been read and approved, the

Secretary read a communication from Doctor J. M. Briceland, giving the reason for his inability to be present at the meeting.

The first business of the evening was the appointment by the President of the regular standing committees.

The following were appointed as

COMMITTEES OF THE STATE BOARD OF HEALTH.

1. On the Salubrity of Public Institutions, Schools, Hospitals, Prisons, Factories, etc.—Doctors Cole, Orme, and Simpson.
2. On Statistics relating to Life and Health, Modes of Employment and of Living, and the Comparative Heathfulness of different localities—Doctors Cluness, Briceland, and Tyrrell.
3. On Intoxicating Liquors, Inebriate Asylums, Pathological Influence of Alcohol, etc.—Doctors Simpson, Cole, and Crowder.
4. On Influence of Irrigation, Tree Planting, etc.—Doctors Crowder, Orme, and Cluness.
5. On Legislative Business—Doctors Briceland, Orme, and Tyrrell.

On these committees the Secretary of the Board is ex officio a member.

And the Secretary was directed to notify each absent member of his appointment.

The Secretary then read a communication from Dr. H. G. Baldwin, of Arizona Territory, asking for the appointment of Quarantine Officer at Yuma, stating that he was informed from reliable sources that yellow fever was present in Sonora, Mexico.

On motion, the communication was received and placed on file, and the Secretary directed to inform Doctor Baldwin that no Quarantine Officer would be appointed at present.

Dr. Orme stated that he had conversed with some gentlemen from that section of the country, but could obtain no positive information of the prevalence of yellow fever at this time.

Dr. Cole wished to know from his Excellency the Governor if the Board had any power to obtain the means of protecting the State from the invasion of infectious or contagious diseases, now that the Legislature had refused to appropriate any funds for that purpose.

Governor Stoneman replied that there was no fund at his disposal for that purpose, and no way of obtaining it except by proclamation calling upon each county to levy a tax for that especial purpose, and then such tax would be under the control of the county levying, and would not be available by the State Board of Health except by and with the consent of such county.

After some further discussion of this subject, it was moved that:

Whereas, The Legislature of the State of California, at its last session, having failed to make the necessary appropriation for quarantine purposes to protect the State from the invasion of contagious or infectious diseases, therefore, it was

Resolved, That Dr. R. Beverly Cole, a member of the Board, during his contemplated visit East, in attendance upon the American Medical Association, be authorized and instructed to confer with the authorities at Washington, D. C., and with the National Board of Health, with reference to obtaining from them such assistance in establishing quarantine on the borders of this State as may become necessary; and,

Further, That this Board request his Excellency George Stoneman, Governor of this State, to give his indorsement and sanction to this authorization.

It was also,

Resolved, That Dr. R. Beverly Cole, a member of this Board, when in Washington, D. C., be authorized and instructed to exert himself to the end of obtaining from the General Government quarantine grounds as recommended by the Commission ordered by President Hayes and reported upon July, 1882. And,

Further, That his Excellency George Stoneman, Governor of this State, be requested to indorse the above resolution.

Both of which resolutions were adopted, and the Secretary requested to prepare credentials in accordance therewith.

On motion, the Secretary was authorized to purchase a cabinet, the property of the late Dr. F. W. Hatch, for the use of the Board, for the purpose of filing away papers, preserving blank forms, etc., at a cost not to exceed forty dollars. Carried.

It was, on motion,

Resolved, That the Secretary be instructed and authorized to prepare, and distribute generally, circulars to the people upon the subjects of cholera, smallpox, and yellow fever.

Carried.

On motion, it was

Resolved, That any assessments due the American Health Association be paid, and a copy of their proceedings obtained for the use of the Board.

Carried.

There being no further business before the Board, on motion, the meeting adjourned.

GERRARD G. TYRRELL,
Permanent Secretary California State Board of Health.

THE REGULAR QUARTERLY MEETING OF THE CALIFORNIA STATE BOARD OF HEALTH,

Was held in Sacramento, July 29, 1885, at 8 o'clock P. M.

Present—Dr. Orme, President; Doctors Briceland, Crowder, Cluness, Cole, Simpson, and Tyrrell. Governor Stoneman was present by invitation.

The minutes of the last meeting were read and approved.

The Secretary presented a bill from the *Sanitary News* for a renewal of subscription for the ensuing year. After some discussion among the members, it was, on motion,

Resolved, That but one copy of the *Sanitary News* be subscribed for, which will be sufficient for the library.

Dr. Cole moved, which was seconded by Dr. Cluness, that the Board subscribe for seven copies of the *Sanitary Engineer*, one for each member of the Board, which was carried unanimously.

The Secretary read a communication from Dr. J. H. Miller, of Redding, Shasta County, regarding the duties of unincorporated towns in the matter of compensating Health Officers, and asking an expression of the Board upon this subject.

Dr. Briceland was of the opinion that this Board had no power to interfere with the action of local Boards. It would likewise be beyond its province, as the Political Code provides for the duties and powers of local Boards of Health, and the compensation of Health Officers.

Dr. Simpson thought that while it was the aim and object of this Board to encourage sanitation, and to foster and sustain all efforts in this direction, yet we ought to be very careful not to interfere with the action of local Boards in managing the details of their office.

It was then moved that the communication of Dr. Miller be placed on file, and the Secretary be directed to answer it in the manner indicated by this Board, which motion was unanimously carried.

The Secretary read a communication from Dr. Boughton, of Benicia. asking to have a Health Officer appointed for that place. This communication was addressed to Dr. Cole.

The Secretary explained that he also had a communication from Dr. Boughton upon the same subject, and answered it by saying that this Board had no power to appoint Health Officers, and sent him a copy of the law upon the subject.

Dr. Cole hereupon replied, that under these circumstances he would ask the return of Dr. Boughton's letter, which he would answer personally.

In answer to a communication from Dr. Lassing, of New York, the Secretary was directed to exchange publications with him.

The Secretary then read a communication from Dr. E. C. Rhodes, complaining of the sanitary condition of Bartlett Springs, and asking that several copies of the circular upon cholera be sent to him for distribution.

The communication was placed on file, and the Secretary instructed to call attention to the sanitary condition of the Summer resorts in his next monthly circular, and also transmit the circulars upon cholera as requested.

Dr. Cole moved that this Board solicit a copy of the transactions of the Pennsylvania State Medical Society, containing the report of Dr. Shakspear upon the Plymouth epidemic, and that the Secretary utilize it in his next circular to the public. Carried.

A communication was read from Dr. Wolfred Nelson, late of Panama, regarding yellow fever and its presence in Mazatlan, Hermosillo, and other towns in Mexico, and promising to communicate with the Secretary if he discovered the disease progressing toward California.

On motion of Dr. Cole, the thanks of the Board were directed to be returned to Dr. Wolfred Nelson for his valuable communication upon yellow fever, and a request be made that he continue to correspond with the Board upon this and other subjects appertaining to the welfare of California. Carried.

The Secretary begged leave to report that in accordance with a resolution passed at the last quarterly meeting of the Board, he had prepared and printed a circular entitled "Facts for the People Concerning Cholera," of which an edition of twenty-five thousand copies was printed and distributed throughout the State. In addition, a circular letter was prepared and sent to the editors of the different newspapers in the State, asking their coöperation in the dissemination of the circular, and calling attention to its contents. This letter was, without exception, favorably received and responded to by every newspaper receiving it. Many papers published our circular in its entirety, and all gave copious extracts or editorially called attention to it. Indeed, one paper, the *Tuolumne Independent*, circulated six hundred copies as a supplement to the paper. To the press this Board is under many and deep obligations for the kind, generous, and noble manner in which it has always seconded its efforts to improve the sanitary condition of the people and advance the welfare of the State. Especially has it done all in its power to bring the subject of cholera under the notice of the people, and the necessity of perfect cleanliness to insure the safety of the State from its invasion.

The monthly circular issued by this Board is now distributed regularly to the leading papers of the State and all Health Boards in the United States and Canada, as well as to the correspondents of the Board. The newspapers very generally republish copious extracts from it as a matter of news interesting to the public.

Your Secretary also, in compliance with the orders of the Board, has paid forty dollars to Dr. Hatch, Jr., for the cabinet in use by the late Secretary, and the sum of thirty-two dollars and forty cents for a full set of the publications of the American Public Health Association, for the use of the Board.

Your Secretary has also opened a correspondence with Dr. Wolfred Nelson, now traveling in Mexico, with a view of obtaining reliable information of the progress of yellow fever in that country, and adopting such means as may be advisable to prevent its incursion into California. The Secretary has also to report that he has corresponded with the Recorders of different counties, and finds that the Registry Law is in most of them a dead letter, and would, therefore, respectfully suggest that the Board take this matter into consideration, with a view of so amending the law that the Vital Statistics of the State may be collected with regularity and accuracy; and as a preliminary to this, that a law be enacted forbidding the interment of any human body without a permit from some duly appointed officer. The Secretary's report was received and his action approved.

Dr. J. M. Briceland moved that the thanks of this Board be returned to the press for the very generous manner in which it has assisted the State Board of Health in disseminating sanitary knowledge among the people, which motion was unanimously carried.

Dr. Briceland moved for Dr. Cole's report when east on the business of the Board.

Dr. R. B. Cole, in response, said that he had no written report, but would state verbally that upon visiting Washington he first and very naturally sought the Secretary of the National Board of Health, and through him learned that that Board was only such in name, owing to the same cause that was crippling the efficiency of the California Board of Health—failure of the Legislature to provide funds for its maintenance. He then visited Surgeon-General Hamilton upon the subject of quarantine, who explained to him satisfactorily that the whole subject of quarantine was under the control of the Marine Hospital service, and that, in his last report to that Board he had strongly urged the claims of California to protection. There is a fund of $300,000 provided if urgent necessity requires its use. This fund is, however, subject to the call of the President, and cannot be used except by and with his consent, and only then in case of great necessity. Dr. Cole then called upon President Cleveland, who received him cordially, and evinced great interest in the sanitary welfare of California, and regretted that our Legislature had been so short-sighted as to leave unprovided with funds a Board so essential to the welfare of the State as the Board of Health. He was, however, impressed with the necessity of taking some means of protecting the State if seriously threatened with epidemic disease, and promised that upon representation from our Board of the necessity of protection, made to Surgeon-General Hamilton, he would do all in his power to have a portion of the emergency fund placed at our disposal; and further promised to aid and assist any measure introduced into Congress for the purpose of more efficiently protecting our State by proper quarantine.

Dr. Jas. Simpson moved that the thanks of this Board be returned to Dr. Cole for the efficient manner in which he had discharged the duties intrusted to him, which was unanimously carried.

It was moved and seconded that a committee of two be appointed to draft a bill upon quarantine, to be reported at our next quarterly meeting. Carried.

The President appointed Doctors Cole and Simpson as such committee.

with authority to confer with any legal gentlemen for advice upon the subject.

After some desultory conversation upon the subject of quarantine and its necessity, there being no further business, upon motion, the meeting adjourned.

G. G. TYRRELL, M.D.,
Permanent Secretary California State Board of Health.

The Regular Quarterly Meeting of the State Board of Health,

Was held in Sacramento, October 12, 1885, at 8 o'clock P. M.

Present—Dr. H. S. Orme, President; Doctors Cole, Crowder, Tyrrell, and later, Dr. Briceland.

The meeting having been called to order, the minutes of the last meeting were read, and on motion approved.

The Secretary then read a copy of a letter sent by Secretary Manning, regarding the establishing of quarantine on this coast, which was ordered to be placed on file.

Dr. R. B. Cole, in referring to his interview with President Cleveland upon the subject of quarantine, desired to say that the President requested that a personal letter be sent him upon this subject toward the end of October or the beginning of November, lest through the pressure of other business the matter should escape his attention. Dr. Cole expressed his intention of writing to President Cleveland as requested.

The Committee on Quarantine Bill reported progress, but were unable to have the bill prepared for presentation to the Board at this session. The committee promised, however, to have a copy of the bill sent to each member of the Board for his criticism and remarks before forwarding it to Congress.

Dr. Cole desired to know if the Secretary had any official communication upon the subject of yellow fever on our southern borders, or what means, if any, had been taken to protect the State from the incursion of this disease.

The Secretary replied that no official communication had been received, except such as was contained in the consular reports received from the National Board of Health in Washington, and the consular reports from the Consul in Guaymas, Mexico.

Dr. Cole moved that the Secretary place himself in communication with Dr. Benjamin R. Carmen, in Mazatlan, to have him keep us informed as to the progress of yellow fever throughout the country, and to give us the names of men whom he could recommend as being efficient inspectors under the United States Marine Hospital Service for services on the borders of our State. Furthermore, that he request Dr. Carmen to give us, to the best of his knowledge, the professional status of Dr. McHattan, of Mazatlan.

Dr. Orme suggested that the names of M. Kieselback, Guaymas, Sonora, and Pedro Davila, Hermosillo, Sonora, be added, and written to for information.

This suggestion was acceded to by Dr. Cole, and the motion was carried.

Dr. Cole then moved that the Secretary, upon obtaining the information sought, shall be authorized, if in his judgment the information is sufficiently important, to call a special meeting of the Board to take such measures as it may deem necessary to obtain efficient quarantine.

The motion was adopted.

Dr. H. C. Crowder moved that the Secretary keep himself in communication with the Secretaries of the State Boards of Health, East, in regard to the progress of smallpox, with a view of establishing the same measures of quarantine, should it become necessary; which was carried.

Dr. Crowder moved that the thanks of the Board be returned to the Secretary, for the efficient manner in which he compiles the "Monthly Circular," and especially that for the month of September, and desires him to have an additional supply printed, and inclose one copy to every newspaper in the State, with a request that it publish the concluding paragraph of the circular, regarding smallpox; which was unanimously carried, and the suggestion adopted.

After some desultory conversation upon the best means of rendering the State Board of Health more effective, by increasing its legal power, and devising some measures by which the vital statistics of the State may be more fully obtained, there being no further business, on motion, the meeting adjourned.

G. G. TYRRELL,
Permanent Secretary California State Board of Health.

The Regular Quarterly Meeting of the California State Board of Health,

Was held in Sacramento, January 12, 1886, at 8 o'clock P. M.

Present—Dr. H. S. Orme, President; G. G. Tyrrell, Secretary; Dr. R. B. Cole, Dr. James Simpson, Dr. H. C. Crowder, Dr. J. M. Briceland, Dr. W. R. Cluness, members; his Excellency Governor Stoneman and Hon. T. H. Thompson, Secretary of State, by invitation.

The minutes of the last meeting having been read and approved, the Secretary read a communication from M. Kieselback, of Sonora, in reply to a letter sent him in relation to yellow fever, by direction of the Board, in which he declined to give any information, upon the plea that as he was a merchant and a foreigner, it would not be to his interest to do so.

The Secretary also read a letter from Dr. R. B. Carmen, of Rosario, Sinaloa, he having removed from Mazatlan, in reply to a communication sent him by order of the Board, regarding the progress of yellow fever in Mazatlan and the Mexican border; in which the doctor, in the most graphic manner, described the wretched sanitary condition of the towns named, and the utter disregard of all sanitary precautions against the dissemination of disease. He believed that yellow fever, a hitherto unknown disease in that part of the country, had now become a regular visitor and was in fact beyond extermination, and that hereafter we would have to constantly guard our frontier.

Dr. Cole moved that the communication be received and placed on file, and that the thanks of the Board be returned to Dr. Carmen for his interesting and instructive letter, and that he be requested to communicate with this Board whenever any event arises which in his opinion would be of value to us as information which would put us on our guard against the encroachment of epidemic disease; which was carried.

The Secretary then called the attention of the Board to a circular from the American Public Health Association, asking contributions from all Boards of Health to defray the necessary expenses involved in the work of the Committee on Disinfectants.

After some discussion upon the power of the Board to apply its funds to that purpose, and it being unanimously agreed upon that the work referred to was eminently in the interest of Boards of Health, and for their benefit and the States they represent, it was therefore, on motion,

Resolved, That the communication from the American Public Health Association be received and placed on file, and that the sum of twenty-five dollars be forwarded by the Secretary to the Treasurer of the American Public Health Association, as a contribution towards enabling its committee to complete its work upon disinfectants.

Which was carried.

The Secretary then read a communication from Professor Rising, the State Analyst, in reference to analyzing mineral waters without compensation, which was, on motion, received and placed on file.

The next business in order being the subject of quarantine, and the reading of the proposed bill, Dr. R. B. Cole, one of the committee on the subject, desired to remark before reading the bill, that, as he had heretofore mentioned, he had written upon the subject to President Cleveland, and had a reply from Colonel Lamont, saying that his letter had been received and that the President would give the subject his closest attention. Dr. Cole further stated, that he had a conversation with U. S. Senator Stanford upon the subject, and also with Congressman Henley, and both promised their joint support of the measure.

Dr. Jas. Simpson, in a lucid manner explained the reasons of certain provisions in the bill, so as to give the least friction in local matters, and by its simplicity to, as far as possible, disarm hostile criticism.

The Secretary then read the bill as follows:

An Act to Establish a Quarantine Station at the Port of San Francisco.

Be it enacted by the Senate and House of Representatives of the United States of America, in Congress assembled:

That, Whereas, The Port of San Francisco is peculiarly liable to the incursions of infectious and contagious diseases from South American, Pacific Island, and Asiatic ports, and it is desirable to establish a well appointed quarantine station thereat;

Now, therefore, there is hereby appropriated out of any money in the treasury not otherwise appropriated, such sum, not exceeding one hundred thousand dollars, as may be necessary to purchase grounds and erect buildings suitable for quarantine purposes at the Port of San Francisco. The same shall be forthwith expended, for the purpose aforesaid, under the direction of the Secretary of the Treasury.

The said quarantine grounds and buildings, when completed, shall be under the supervision of the Marine Hospital service at said port. The use thereof, from time to time, may be granted by the authorities of said hospital to the Health Departments of the City and County of San Francisco or State of California, upon condition that the said Health Departments, or either of them, assume the expense of maintaining the same.

After some discussion upon the general features of the bill, and obtaining the opinion of his Excellency Governor Stoneman, with his approval of the measure, it was, on motion of Dr. H. C. Crowder,

Resolved, That the bill be adopted as read, and presented to our Representatives in Congress assembled.

Which was carried.

On motion of Dr. Crowder, it was further

Resolved, That the State Board of Health request his Excellency the Governor to authorize the printing of six hundred copies of the bill, to be held by the Secretary, and none of them to be distributed outside the limits of the Board until the bill had been presented to Congress, and then to forward to each member of the House of Representatives a copy of the bill.

Which was carried.

Dr. Cole moved that the Secretary, in forwarding the bill to our Senators and Congressmen, accompany the same with a letter asking their coöperation and favorable consideration of the bill, and requesting their earnest efforts in behalf of its passage when it comes before them.

Which was unanimously carried.

On motion of Dr. H. S. Orme, it was

Resolved, That the thanks of this Board be tendered to each and all of our numerous correspondents who so generously devote their time and labor to supplying our Secretary so efficiently and regularly with their monthly reports of deaths and prevailing diseases, and that the Secretary be instructed to convey this sentiment to his correspondents, and to request their continued aid in carrying out the work of the Board, and their acceptance of its thanks.

Which was carried unanimously.

There being no further business to come before the Board, on motion of Dr. Briceland, it adjourned.

G. G. TYRRELL,
Permanent Secretary California State Board of Health.

The Regular Quarterly Meeting of the California State Board of Health,

Was held in Sacramento, April 19, 1886, at 8:30 P. M. Present: Dr. Orme, President; Dr. R. B. Cole, Dr. James Simpson, Dr. H. C. Crowder, Dr. J. M. Briceland, Dr. W. R. Cluness, Dr. G. G. Tyrrell, members, and Hon. Ed. Maslin, by invitation.

The minutes of the last meeting were read and approved.

The Secretary reported that he had duly forwarded the amount voted at the last meeting, to the American Public Health Association, received acknowledgment, and the thanks of the Secretary.

The Secretary then read a letter from the Secretary of the National Board of Health, Washington, in reference to the bill forwarded by this Board to our Representatives in Congress, asking quarantine station, and the Secretary's reply, which was satisfactory to the National Board. The members of the State Board expressed satisfaction that no misunderstanding was permitted to exist regarding its relations with the National Board of Health.

The Secretary then read a communication from the American Public Health Association regarding the publication of the Lomb Prize Essays, etc.

On motion of Dr. Cluness, seconded by Dr. H. C. Crowder, the Secretary was instructed to order eight copies of Lomb's Prize Essays on sanitary matters for distribution among the members, which was carried.

The Secretary read a communication from Dr. W. D. Groton, relative to the cases of trichiniasis recently under his care, which was ordered embodied in the biennial report, and the thanks of the Board returned to Dr. Groton.

Dr. R. B. Cole then read a communication from Congressman Henley, regarding the quarantine bill, and promising his cordial support of the measure in the House of Representatives.

Senator Stanford had likewise indorsed the measure, and at the request of Dr. Cole had already introduced the bill in the Senate, where it was referred to the appropriate committee.

It was therefore, on motion,

Resolved, That the Secretary be instructed to write an official letter to Senator George Hearst, and call his attention to the fact that a quarantine bill had been introduced into the Senate of the United States; that it has the indorsement of the National Board of Health, the United States Marine Hospital Service, the Medical Society of State of California, the State Board of Health, the San Francisco Board of Trade, and the general community, and that his active coöperation and assistance in passing the bill through the Senate in the interest of the public health upon this coast will be looked upon with favor by all parties, and tend to promote confidence in the people that the inroads of contagious disease will be prevented if possible.

Which was carried unanimously.

On motion of Dr. Simpson, it was

Resolved, That a committee of three, composed of Doctors Briceland, Cluness, and Tyrrell, be appointed a committee to revise the law providing for the establishment of a State Board of Health, by increasing its legal powers, and enabling it to have a local Board of Health established in every county of the State, under a penalty which will compel obedience. and that the assistance of the Honorable Ed. Maslin be obtained to give such legal assistance and advice as may be necessary in the premises.

Carried.

The various committees appointed to prepare reports for the biennial report reported progress, and were all confident of obtaining such information upon the subjects designated as may be useful for the welfare of the public.

The Secretary reported that no epidemic disease at present threatens the State, with the exception of that at Panama, where yellow fever is reported quite prevalent and exceedingly fatal. We rely upon the vigilance of the health authorities in San Francisco to watch carefully the shipping arriving from the Isthmus, and enjoin a strict quarantine if any suspicious developments take place.

Drs. Simpson and Cole advocated the necessity of having an appropriation from the Legislature this Winter, so that we may be prepared for any emergency that may arise.

Drs. Briceland, Crowder, and Cluness joined in the discussion of this subject, and the feeling was unanimous that by urging the matter persistently legislation might be obtained.

There being no further business before the Board, the meeting adjourned.

GERRARD G. TYRRELL,
Permanent Secretary California State Board of Health.

REPORT OF THE PERMANENT SECRETARY

TO THE

STATE BOARD OF HEALTH.

REPORT OF THE PERMANENT SECRETARY.

To the State Board of Health:

Gentlemen: In presenting this, the biennial report of the State Board of Health, your Secretary has to regret its many imperfections in matters appertaining to the vital statistics of the State. This is owing to many causes beyond the control of your executive officer, the most potent one being the impossibility, under the existing law, of collecting trustworthy records. This we may hope to correct in time, as public interest in sanitary matters increases. But during the long continued illness and subsequent death of your late efficient Secretary, Dr. Hatch, the imperfection of the law manifested itself in the most striking manner. As you are aware, it is the duty of the County Recorders to transmit to the Secretary of the Board of Health a copy of all the births, deaths, and marriages in their respective counties, but as this was not possible for them, from the fact that no person, with few exceptions, ever registered births or deaths in their offices, the Secretary of the Board of Health was obliged to collect these statistics from voluntary contributors. In the midst of this occupation disease was silently making its inroads upon the health of Dr. Hatch, and the work he was doing become onerous.

Sickness is at all times a disqualifying agent in the transaction of business which requires constant vigilance and attention to sustain the interest of voluntary contributors to a work which is appreciated by few, and almost thankless. How much more so when that sickness of months was accompanied by extreme debility and ever-increasing prostration, rendering each act performed a sacrifice of strength and a quicker movement toward eternity. Under such a trial we cannot wonder that the records of the year 1884 are imperfect. Those of the earlier part of that year were lost, mislaid, or never recorded, and those of the latter half of the year—which I was fortunate enough to secure—were so few and imperfect as to give a very uncertain estimate of the mortality of those months. At the period of Dr. Hatch's death, the machinery of the Board had become disarranged, the intelligent hand that had hitherto guided its working had ceased to labor, his last biennial report had been made, to him time was no more, and all registration had come to an end.

The loss this Board had sustained in the demise of its distinguished Secretary was quickly followed by the no less severe misfortune in the sudden death of its venerable President, Dr. Henry Gibbons—a man whom the Board held in highest reverence and esteem, whose prudent counsels and clear foresight enabled it to meet emergencies with judicial wisdom. At this time the Board had still to meet another loss in the resignation of Dr. Chester Rowell, who by having accepted a Federal position thereby became disqualified from holding a State office. The Board was now bereft of three of its most valued officers, all men of experience as sanitarians and thoroughly imbued with the importance of the work in which they had been engaged. Under these circumstances it became necessary for the continued efficiency of the Board, that the vacancies should be promptly filled. Accordingly, his Excellency Governor Stoneman appointed Doctor James Simpson and Dr. R. Beverly Cole, of San Francisco, and Dr. G. G. Tyrrell, of Sacramento, to occupy the seats made vacant by death and resignation. After the reorganization of the Board, the election of Dr. H. S. Orme as President, and the selection of myself as Secretary, it became evident upon looking into the affairs of the Board that the material which might have been utilized in continuing the work of my predecessor was in such a disjointed condition, and the records of the office so scattered, that but very little of it was available. The correspondents of the Board being unknown it was a matter of impossibility to obtain a renewal of their reports; therefore your Secretary, in order to ascertain certain facts connected with the welfare of the Board, issued the following circular to every county in the State, and to the more prominent medical men residing therein, in the hope that a complete list might be obtained of those willing to coöperate with the Board in its desire to possess the fullest information possible of the sanitary condition of the State; and, also, to learn to what extent the requirements of the law governing Boards of Health had been observed:

Office of the California State Board of Health,
Sacramento, December 8, 1884.

Owing to the long continued illness of Dr. F. W. Hatch, late Secretary of the California State Board of Health, the mortuary returns from the different localities in the State to the Board of Health have not been as complete as they ought to be, and as required by the provisions in the Political Code designed for that purpose. In order to perfect these returns and establish permanent communication throughout the State between the different counties and the State Board of Health, whereby vital statistics may be collected and utilized for the advancement of sanitary science and the general welfare of the community, I will esteem it a special favor if you will answer at your earliest convenience and as fully as possible the following questions:

1. Has a Board of Health been established in your city (or town)? Ans. ——.
2. Is the Board organized under Chapter II, Article V, Section 3061 of the Political Code, approved March 19, 1878, or under the provisions of the city (or town) charter? Ans. ——.
3. How is the Board constituted? Ans. ——.
4. Are meetings of the Board regularly held? Ans. ——. If so, how often? Ans. ——.
5. Has a Health Officer been appointed? Ans. ——.
6. Have health ordinances been adopted, and are they enforced, looking to the improvement or preservation of the sanitary condition of your city (or town)—such as the cleansing of privies, vaults, and other foul places? Ans. ——.
7. Have reports been made by your Board of Health to the State Board, as required by Section 3061 of the State law, of *deaths* and epidemic, contagious, or infectious diseases? Ans. ——.
8. Has your Board of Health adopted any ordinance requiring a certificate of death to be filed, and a burial permit to be obtained, before the interment of a deceased person shall be allowed? Or is there any such ordinance now in force in your city (or town)? If not, what means have you of ascertaining death, or causes of death, in the community? Ans. ——.
9. If no such Board has been established, or Health Officer or Sanitary Inspector appointed, will you, upon the receipt of proper blanks furnished for that purpose, ascertain the number of deaths and causes thereof in your city, town, or vicinity, and transmit the same monthly to the Secretary of the State Board of Health, in Sacramento? Ans. ——.
10. Will you notify the Secretary of the State Board of Health of any epidemic, infectious, or contagious disease in your city, town, or vicinity, that direct investigation may be made into its cause, advice given, or, if possible, remedies suggested to mitigate or arrest the advance of the disease? Ans. ——.
11. What is the present estimated population of your city (or town)? Ans. ——.

Respectfully submitted for the State Board of Health.

G. G. TYRRELL, M.D., Permanent Secretary.

To this circular over a hundred replies were received, which demonstrated the fact that in but few instances had the law, requiring incorporated cities and towns to establish local Boards of Health, been observed, and in still fewer instances had a Health Officer been appointed in lieu thereof. Another fact was ascertained by this circular, which has an important bearing upon the mortuary statistics of the State, and that is that in eight only of those cities or towns having organized Boards of Health is a permit required for the burial of a deceased person. In every other city, town, or village heard from, no permission from any regularly constituted authority was required to inter a dead body, neither was the cause of death required to be ascertained. If, however, the undertaker kept a list of those he interred, he generally inquired of the physician the cause of death, and recorded it. This was, however, entirely voluntary on the part of both undertaker and physician, no law existing on our statute books requiring a permit for burial, except by local ordinance in incorporated cities.

Another fact was elicited in the replies to this circular, and that was the general desire of the medical profession on this coast to aid and assist the State Board of Health in the promotion of sanitary measures, and in the collection of mortuary statistics. Among the whole number of medical men from whom replies were received, there was but one who refused to correspond with the Board except he was compensated for the trouble; and one who refused upon the ground that the sooner an epidemic destroyed the inhabitants of the town in which he lived the better; and lest the conveyance of the information of an outbreak of epidemic disease might mar that result, he declined to notify the Board if such should occur. With these two exceptions a most cheerful compliance with the desire of the Board for information was promised and expressed. Accordingly, I supplied some hundred and twenty-four gentlemen with postal cards, for deaths and prevailing diseases, from whom I receive reports every month.

An attempt was made to obtain a complete list of all the deaths occurring in each county, by applying to the County Recorders, who, according to law, are required to transmit to the Secretary of the State Board of Health a trimonthly statement of all the births, marriages, and deaths registered in their office. It was soon ascertained that while the Recorders were willing to do their duty in the premises, they had no records to transmit, and in some counties not a single death had been recorded for years. The Legislature of 1884 being now in session, your Secretary, in hope of having this gross violation of a plain provision of the law rectified, prepared the following amendment to the law relating to the registry of births, marriages, and deaths, and expected that if he succeeded in having it placed upon the statute book a record of births, marriages, and deaths would be a possibility, and by a little attention might be made a probability or a decided success:

AN ACT TO AMEND SECTIONS THREE THOUSAND AND SEVENTY-SEVEN, THREE THOUSAND AND SEVENTY-EIGHT, AND THREE THOUSAND AND EIGHTY-TWO OF AN ACT ENTITLED "AN ACT TO ESTABLISH A POLITICAL CODE," APPROVED MARCH TWELFTH, EIGHTEEN HUNDRED AND SEVENTY-TWO, RELATIVE TO THE "REGISTRY OF BIRTHS, MARRIAGES, AND DEATHS."

The People of the State of California, represented in Senate and Assembly, do enact as follows:

SECTION 1. Section three thousand and seventy-seven of said Act to establish a Political Code is amended so as to read as follows:

3077. All persons registering marriages, births, or deaths, must, at the close of every month, file with the County Recorder a certified copy of their register. All such certificates must specify, as near as may be ascertained, the name in full, age, occupation, term of residence in the city or county, birthplace, condition, whether single or married, widow or widower, sex, race, color, last place of residence, and cause of death of all decedents; and of births, the sex and color of the child, and name and nationality of its parents. Any person so registering in accordance with this section, and filing the same with the County Recorder, who shall give a certificate of the same, which shall be sufficient evidence of the duty having been performed, shall, upon presentation of the Recorder's certificate to the Board of Supervisors, be entitled to a compensation of twenty-five cents, to be allowed by the Board of Supervisors, and paid out of the General Fund of the county, for each and every birth, marriage, or death so recorded.

Sec. 2. Section three thousand and seventy-eight of said Act to establish a Political Code is amended so as to read as follows:

3078. If, at any birth, no physician or midwife attends, the parents must make the report, and shall be entitled to the same compensation as other persons performing like service in the manner prescribed in section three thousand and seventy-seven.

Sec. 3. Section three thousand and eighty-two of said Act to establish a Political Code is amended so as to read as follows:

3082. Any person, on whom a duty is imposed by this chapter, who fails, neglects, or refuses to perform the same as herein required, is liable to a penalty of fifty dollars for each and every offense, to be recovered by the District Attorney of the proper county for the use of the General Fund of such county, when notified by the Secretary of the State Board of Health that such reports have failed, or were neglected to be returned to his office by the County Recorder, or when notified by the County Recorder that such returns have not been filed with him, or when he has reason to believe that any births, marriages, or deaths have not been returned as required by this Act.

Sec. 4. This Act goes into effect immediately.

As will be seen, the amendments consist in—

First—Having every person registering births, marriages, and deaths file *monthly* a certified copy of their register.

Secondly—In paying for each birth, death, or marriage so recorded the sum of twenty-five cents, which is a small pittance, but still enough to insure performance of the duty.

Thirdly—For a failure to perform this duty, it shall devolve upon the Secretary of the State Board of Health to notify the District Attorney to commence suit against the County Recorder, if he is derelict; and it shall be the duty of the County Recorder to notify the District Attorney to prosecute those whose duty it is to register births, marriages, and deaths, if they fail to do so within the time stipulated. This bill was introduced by Dr. Saxe, Senator from Santa Clara, through whom it was thought it could be enacted into law, as of the greatest importance to the sanitary interest of the State, and also as one of vital interest to the welfare of the community, as without a perfect record of the births, marriages, and deaths it will be impossible to show the effect of our climate in reference to the causes which abridge or prolong life, or to ascertain the amount of sickness, or mortality, or the comparative prevalence in certain localities of endemic disease; as we know that local influences differ much in various places, and certain seasons; some are comparatively healthy and some extremely unhealthy. By a general, full, and accurate registration these and numberless other facts might be definitely ascertained to the great benefit of the community and to the lessening of our mortality list. Another point of vast importance is that as our State increases her population, so is the greater necessity of having a record of vital statistics, which for their accuracy may be relied upon in establishing the right to or the just distribution of property. Cases have happened in this State where persons have failed in securing their lawful title to property because of the impossibility of supplying the missing link in the chain of evidence which accurate registration would infallibly have supplied. An accurate registration of vital statistics would also solve many questions regarding the social condition of communities and the progressive change in the habits and practices of peoples. The value of the accumulated and systematized facts so obtained would in business relating to life insurance and annuity companies be invaluable, and as a means of detecting crime a proper registration of every death occurring in the State would obviate or unmask many a foul murder, whether at the hands of the abortionist, the quack, or the willful murderer. The almost universal practice now in vogue in this State of allowing the burial of the dead without let or hindrance, is simply offering an inducement to crime. and should not longer be permitted to exist without correction. It is of paramount importance then to every well ordered Government "to establish such a system of registration of all vital statistics of any importance as shall enable it, both for the present and the future, to know its own life history and the influences that are molding it for better or for worse as the years pass by." With these objects in view the present law was sought to be amended. I regret, however, to say that the bill for this purpose never got beyond its first reading, although favorably reported for passage by the Judiciary Committee, more energy being required to pass any such salutary measure, in which no monetary issue was involved, than the introducer of the bill was able to give it.

About this time a bill was introduced by Senator G. Whitney, which read as follows:

> Whenever, by existing law or by ordinance of any incorporated city, or city and county, or by ordinance or resolution of the Board of Supervisors of any county, a permit is required from a Board of Health, Health Officer, or other authorized officer or person, before depositing or burial in any cemetery of any human body, such permit shall not be granted without the production and filing with such Board of Health, Health Officer, or other authorized officer or person, a certificate signed by a physician or a Coroner, or two reputable citizens, setting forth as near as possible the name, age, color, sex, place of birth, occupation, date, locality, and cause of death of the deceased. And no certificate shall be received upon which to grant such permit unless signed by a physician, Coroner, or two reputable citizens, registered as such under his proper signature at the office of such Board of Health, Health Officer, or other authorized officer or person.

This bill before its passage I sought to have amended, by inserting a clause requiring that no person or persons shall inter in any city, or city and county, or in any county in this State, any human body, without first having obtained a permit from some authorized officer or person. This amendment likewise met with disaster, as the author of the bill feared that the insertion of this clause would cause some controversy over his measure. which he sought to avoid, as its passage was desired in the particular interest of the City of Oakland, which he represented. Foiled in this endeavor, I thought that I possibly might be able to get a bill passed amending the Code, making it incumbent upon the Board of Supervisors of each county to appoint a Health Officer for every unincorporated city. town, or village, of five hundred or over inhabitants. The Act was as follows:

AN ACT TO AMEND SECTION THREE THOUSAND AND SIXTY-TWO OF AN ACT ENTITLED AN ACT TO ESTABLISH A POLITICAL CODE, RELATING TO BOARDS OF HEALTH.

SECTION 1. Section three thousand and sixty-two of the Political Code is amended so as to read as follows:

3062. The Board of Supervisors of each county must appoint in each unincorporated city or town of five hundred or more inhabitants, a Health Officer, with all the duties and powers of the Board of Health and Health Officer, as specified in this article and in the two preceding articles.

SEC. 2. This Act shall take effect immediately.

This bill was also intrusted to Senator Saxe; was referred to the Judiciary Committee, and reported favorably. It reached its first reading. but further than this the introducer of the bill failed to push it. It was now very evident that nothing could be done in the way of amending our laws in regard to the registration of births, marriages, and deaths during the session of the Legislature of 1885. The further attempt was therefore reluctantly abandoned.

I thought, however, that although I had failed in getting such amendments to the law as thought needful in this matter, it might be possible to pass a bill making vaccination compulsory on all children attending the public schools, and thus insure an entering wedge to make the law general. With this end in view I drafted the following bill, which was modeled upon that now existing as law in the State of New York:

AN ACT TO ENCOURAGE AND PROVIDE FOR A GENERAL VACCINATION IN THE STATE OF CALIFORNIA.

The People of the State of California, represented in Senate and Assembly, do enact as follows:

SECTION 1. The Trustees of the several common school districts in this State, and the proper local Boards of common school government in the several cities, towns, and villages of the State, are hereby directed and empowered, under the provisions hereinafter set forth, to exclude from the benefits of the common schools therein, any child or any person who has not been vaccinated, and until such time when said child or person shall become successfully vaccinated.

SEC. 2. The said Trustees, or local Board, may adopt a resolution to carry into effect the power conferred by the first section hereof; and whenever they shall do so, they shall give at least ten days' notice thereof, by posting the same in two or more public or conspicuous places within the limits of their school governments, and shall, in said notice, advertise due provision for the vaccination of any child or person of suitable age who may desire to attend the common school, and whose parents and guardians are unable to procure vaccination for them, or for the children of suitable age of such parents as by reason of poverty may be exempted from taxation in such school district.

SEC. 3. The said Trustees or Board may, in their or its discretion, appoint some competent physician and fix the compensation for his services, the duty of which physician shall be to ascertain the number of children or persons in the school district or subdivision of city school government, being of age suitable to attend the common school, who have not been already vaccinated, and also to furnish to the said Trustees or said Board, a list of the names of all such children or persons. It shall also be the duty of said physician to provide himself with good and reliable vaccine virus, wherewith to vaccinate such of the number of children or persons aforesaid as have not been vaccinated according as the Trustees or Board shall direct, and to thereupon give certificates of vaccination when said physician has, by personal examination, assured himself of the success of the vaccination, which certificates shall be evidence thereof for the purposes of a compliance with section first hereof.

SEC. 4. The necessary expenses incurred by the provisions of this Act shall be included and collected in the annual tax bill of the district, town, village, or city, as may be proper according to law.

SEC. 5. The Trustees of the several school districts of this State are hereby required to include in their annual report, and report to the Secretary of the State Board of Health, the number in their several districts between the ages of five and twenty-one years who are vaccinated, and the number unvaccinated.

SEC. 6. This Act shall take effect immediately.

This bill was also introduced by Senator Saxe, was referred to the Judiciary Committee, reported back favorably, and its passage recommended. Dr. Saxe succeeded in having it read twice, but, unfortunately for the sanitary interest of the State, it was allowed to remain without further action, and died of inanition.

Thus far all attempts to amend our registration laws, or improve the existing health laws, or introduce others, have utterly failed. Whether this was owing to my lack of experience in the ways of legislators, want of interest or energy on the part of the learned gentleman to whom was confided the carriage of the bills, or ignorance on the part of the legislators themselves upon questions of sanitation, I am unable to say. The fact, however, remains, that from one or all of these causes, the State Board of Health, through its executive officer, has been unable to effect those measures of legislation which it believes would have been in the interest of and for the good of the whole people of this State.

In accordance with instructions from this Board, and in compliance and conformity with a resolution of the Medical Society of the State of California, passed by that body in April, 1884, your Secretary drafted a bill asking the appointment of a State Analyst and Chemist for the purpose of examining officially the mineral waters of the State, and also the adulterations which we believe to be mixed with our food and drugs. The bill is as follows:

AN ACT TO PROVIDE FOR ANALYZING THE MINERAL WATERS AND OTHER LIQUIDS, AND THE MEDICINAL PLANTS OF THE STATE OF CALIFORNIA, AND OF FOODS AND DRUGS, TO PREVENT THE ADULTERATION OF THE SAME.

The People of the State of California, represented in Senate and Assembly, do enact as follows:

SECTION 1. The Governor of the State of California shall appoint one of the Professors of the State University of California of sufficient competence, knowledge, skill, and experience as State Analyst, whose duty it shall be to analyze all articles of food, drugs, medicines, medicinal plants, mineral waters, and other liquids or solids which shall be manufactured, sold, or used within this State, when submitted to him, as hereinafter provided.

SEC. 2. The State Board of Health and Vital Statistics or medical officers of health of any city, town, or of any city and county, or county, may, at the cost of their respective Boards or corporations, purchase a sample of any food, drugs, medicines, medicinal plants, mineral waters, or other liquids offered for sale in any town, village, or city in this State, and submit the same to the State Analyst as hereinafter provided, and said Analyst shall, upon receiving such article duly submitted to him, forthwith analyze the same and give a certified certificate to the Secretary of the State Board of Health submitting the same, wherein he shall fully specify the result of the analysis; and the certificate of the State Analyst shall be held in all the Courts of this State as prima facie evidence of the properties of the articles analyzed by him.

SEC. 3. Any person desiring an analysis of any food, drug, medicine, medicinal plant, soil, mineral water, or other liquid, shall submit the same to the Secretary of the State Board of Health, together with a written statement of the circumstances under which he procured the articles to be analyzed, which statement must, if required by him, be verified by oath; and it shall be the duty of the Secretary of the State Board of Health to transmit the same to the State Analyst, the expenses thereof to be defrayed by said Board.

SEC. 4. The State Analyst shall report to the State Board of Health the number of all the articles analyzed, and shall specify the result thereof to said Board annually, with full statement of all the articles analyzed and by whom submitted.

SEC. 5. The State Board of Health may submit to the State Analyst any samples of food, drugs, medicines, medicinal plants, mineral waters, or other liquids for analysis, as hereinbefore provided.

SEC. 6. It shall be competent for the Mineralogist of the State of California to submit to the State Analyst any minerals of which he may desire an analysis to be made; *provided*, that the cost of the same shall be defrayed by the Mineralogical Bureau.

SEC. 7. The Board of State Viticultural Commissioners shall have the same privileges as are provided for the State Board of Health under this Act, with respect to samples of wines and grape spirits, and of all liquids and compounds in imitation thereof, and any person or persons desiring analyses of such products shall submit the same to the Secretary of the said Board of State Viticultural Commissioners, and the same shall be transmitted to the State Analyst in the manner prescribed in section three of this Act. The analyses shall be made and the certificate of the State Analyst shall be forwarded to the Secretary of the said Board of State Viticultural Commissioners, and shall have the same force and effect as provided for in section two of this Act, with respect to analyses made for the State Board of Health.

This bill having many friends in the Senate, and being energetically advocated by the Rev. Mr. Bonté, the efficient Secretary of the University of the State of California, as a measure tending to confirm the great medicinal value of the numerous mineral springs in this State, and also as a means of protecting the general public from the many fraudulent adulterations of foods, condiments, drugs, etc., which so vitiate their quality as to render them detrimental in many instances, it received the sanction of the Legislature and passed into a law, which has now been in operation for some time. The measure has not as yet produced sufficient definite results upon which to form an opinion as to its future usefulness. It is, however, expected that during the ensuing year some valuable work will be done in this direction, which will exhibit in a satisfactory manner the necessity which existed for the creation of the office. At present the medicinal properties and curative value of several of our favorite mineral springs are but vaguely guessed at, no satisfactory analysis having been officially made of them, or their hygienic value determined. This is a part of the work to be undertaken, and when properly and systematically carried to completion, and all the prominent mineral springs in the State analyzed accurately and definitely recorded, the value of such a record will be almost incalculable, as it will at once establish, what we now believe to be a fact, that we have within the borders of this State a series of mineral springs that will rival, if not excel, any of those so famous in the Eastern States and on the Continent of Europe for their medicinal virtues and curative properties.

CHOLERA.

The Board having in view its duty "to take cognizance of the interests of health and life among the citizens generally," and believing from the inroads that cholera was making on the continent of Europe, that we were in some danger from the advent of that dreadful disease upon our coast, instructed your Secretary to prepare a circular upon the subject, enjoining upon the citizen the necessity of perfect sanitation as one of the best barriers to the introduction or progress of the disease. In accordance with these instructions, your Secretary prepared and distributed twenty-five thousand copies of the following circular:

Preventable Disease Circulars.

Facts for the People Concerning Cholera.

The Legislature of the State of California, during its last session, 1885, having, with the utmost indifference to the sanitary welfare of the people, in utter disregard of the suggestions offered by his Excellency Governor Stoneman, in his biennial message, and equally regardless of the importunities of the State Board of Health, refused to appropriate a single dollar to protect the State from the invasion of infectious or contagious diseases; therefore, in view of the possibility, or rather the probability, of *cholera* extending its ravages to the Pacific Coast this Summer, the State Board of Health deem it prudent to offer to the public a few words of warning as to the necessity of the early employment of sanitary measures, to arrest the development of disease or mitigate its virulence if, unfortunately, it should appear among us.

Cholera being essentially a *preventable* disease, all questions concerning its cause, diffusion, and prevention, must interest the people of this coast just now, when Europe is again the theater of its manifestations; and as all preventive measures are based upon the assumption that the virus or germ of the disease is a living organism capable of transmission through water, food, clothing, or personal contact, and like all living matter, is itself susceptible of death, the prevention of its dissemination, or the means of its speedy destruction, are the desiderata to be sought.

Cholera upon these shores is a foreigner, and has never yet visited us, except by importation, and then only after ample warning. Last year the warning came to us from France and Italy; this year it comes from Spain and the shores of the Mediterranean. How soon it may reach New York or other seaports upon the Atlantic border is a question of time. It is sure to come along the highway of travel, and once landed on our shores will make its way across the continent quite speedily. Had the question of quarantine, efficiently exercised, been entertained by the last Legislature, and provision made for its maintenance, we believe we could have kept cholera, yellow fever, and smallpox out of California. The highway is now open, and we must expect to reap the fruits of the criminal negligence, ignorance, and stupidity of our law-makers.

What can be done in the way of prevention locally? Much may be done if the officers of health, or the properly constituted authorities, do their duty. Cholera, as was said before, is a preventable disease; its habitat is among a crowd; it revels in filth and decomposing organism, but failing to find suitable conditions for its growth and maintenance it dies out. Consequently, the very first thing to be done is for each individual to see that *his* house, outhouse, and yard is put into a good sanitary condition. Do not wait for any health officer, see to it *yourself*. Have your drains cleaned out and flushed with water; your privy or cesspool emptied and disinfected immediately. See that your cellar is cleared of all decaying substances, have it thoroughly whitewashed, and all filth, rags, etc., burned. If you have a well see that the water thereof is not contaminated by drainage from the house or outhouses. If you have the slightest suspicion that it is, boil the water before using, or better still, shut up that well and dig another away from all chance of such contamination. If you use river water, which is always more or less polluted, see that it is boiled before drinking it, and you will save your health for the trouble. Avoid crowding in sleeping rooms. See that each room is properly ventilated, nothing being so conducive to disease as an overcrowded and ill-ventilated apartment. Plenty of fresh, pure air, pure water, and wholesome food, with household and personal cleanliness, will do more to prevent the access of cholera to your dwelling than all the supplications of the credulous, or the nostrums of the charlatan. While there is danger of cholera, or, indeed, any epidemic disease, developing in your midst it is an act of prudence to avoid excessive fatigue from any source, as the system when tired or exhausted is much more liable to infection, and less able to resist it, than in any other conditions. It is also indispensable that the stomach and bowels be kept in a healthy state by avoiding all unripe fruit, decaying vegetables, fish, flesh, or any food that is not perfectly sweet and fresh. Temperance in all things should be enjoined, and especially in alcoholic beverages, as it is found by experience that the intemperate, or those addicted to drinking intoxicating fluids habitually, are the first to die in an epidemic of cholera. Nature knows no mercy in dealing with the violators of Nature's laws; if her laws are transgressed the punishment is swift and certain. Food should not be kept in the same room with the sick from any infectious disease; neither should that unconsumed by the sick be used by others, but either burned or disposed of in some other equally safe way.

If cholera should appear in your dwelling, the first thing to do is to isolate the patient, put him into a comfortable room without carpets and with as little furniture as is consistent with comfort, disinfect immediately all discharges from the body, and either burn or bury them; do not throw them into either privy or cesspool to poison your family or your neighbors; see that the patient has medical attendance promptly; do not wait ten or twelve hours to see if he will get better—delay in cholera means death. Cholera always gives warning of its approach by premonitory diarrhœa; this is the favorable opportunity to arrest the disease; the attack is then under the control of medicine judiciously chosen and administered; a few hours delay and it will have passed from comparative safety into extreme danger, perhaps beyond the power of remedies to save; act, then, promptly and intelligently, and a valuable life may be rescued from a fatal illness.

If there is no medical man within easy call, and a person be attacked with premonitory diarrhœa, place him in bed at once, apply warmth to the feet, a mustard poultice over the abdomen, and give a teaspoonful of paregoric (which is to be found in every family) every hour until your medical attendant arrives. Do not give, indiscriminately, stimulants—brandy, red pepper, camphor, ginger, etc., advised by busybodies; wait for skilled medical advice—more people are killed by quackery and meddlesome trifling than by disease.

If traveling, avoid as much as possible using urinals or water-closets at railway stations; if not properly taken care of and daily disinfected they are constant sources of infection.

Remember that cholera is always, in this country, imported; it seeks crowds, and follows, as a rule, the line of travel; railway companies and lines of transportation generally should see that all urinals, water-closets, and baggage-rooms belonging to the company, or about their premises, are daily cleansed, purified, and disinfected.

DISINFECTION AND DISINFECTANTS.

Disinfection is the destruction of the poisons of infectious or contagious diseases. *Deodorizers*, or substances which destroy smells, are not necessarily disinfectants, and disinfectants do not necessarily have an odor. *Disinfection* can not compensate for want of cleanliness or of ventilation.

DISINFECTANTS TO BE EMPLOYED.

Roll Sulphur (brimstone), for fumigation; this is a cheap and efficient substance for fumigating rooms; it is positively destructive to disease germs, when efficiently used.

Sulphate of Iron (copperas), dissolved in the proportion of one and a half pounds to the gallon of water, is a cheap and reliable deodorizer and antiseptic for privies, cesspools, sewers, etc.

Sulphate of Zinc, in the proportion of four ounces of sulphate and two ounces of common salt to the gallon of water, is efficient and harmless for clothing, bed linen, blankets, etc. It should be used boiling hot, and the articles to be disinfected plunged into it and thoroughly boiled.

Corrosive Sublimate, in the proportion of a quarter of an ounce to the gallon, is an unsurpassed germicide and disinfectant, but has the disadvantage of being excessively poisonous, and therefore dangerous for general use.

Carbolic Acid is of uncertain strength, is expensive, and experience has shown that it must be employed in comparatively large quantities to be of any use. It is also liable, by its strong odor, to give a false sense of security.

HOW TO USE DISINFECTANTS.

I. *In the sick room.* The most available agents are fresh air and cleanliness. The clothing, towels, bed linen, etc., should, on removal from the patient, be placed in a tub of the zinc solution, boiling hot if possible. All discharges from the patient should either be received in vessels containing the copperas or corrosive sublimate solution, or, if this is impracticable, should be covered with the solution. Unnecessary furniture, especially that which is stuffed, carpets, and hangings, should be removed from the room at the outset, if possible; otherwise they should remain for fumigation and treatment.

II. *Fumigation* with sulphur is the only practicable method of disinfecting the house. For this purpose the rooms to be disinfected must be vacated. Heavy clothing, blankets, bedding, and other articles which can not be treated with the zinc solution, should be opened and exposed during fumigation, as directed below: Close the rooms as tightly as possible, stopping up every crevice and keyhole; place the sulphur in iron pans, supported upon bricks placed in washtubs containing a little water, set it on fire with alcohol or kerosene sprinkled upon it, and allow the room to remain closed twenty-four hours. For a room ten feet square at least two pounds of sulphur will be required; for larger rooms proportionately larger quantities will be necessary.

III. *Premises*, cellars, yards, stables, gutters, privies, cesspools, water closets, sewers, drains, should be liberally treated with the copperas solution; it is cheap and effective, and may save your life. The copperas solution may be easily prepared by hanging a basket containing about sixty pounds of copperas in a barrel of water.

IV. *Body and bed clothing.* It is best to burn all articles which have been in contact with persons sick of infectious or contagious diseases. Articles too valuable to be destroyed should be treated as follows: *Cotton, linen, flannels, blankets*, etc., should be treated with the boiling hot zinc solution, introduced piece by piece; secure thorough wetting, and boil for half an hour. *Furs, silks, heavy woolen clothing, bed covers*, and *beds*, which cannot be thus treated with the zinc solution, should be hung in the room during fumigation, their surfaces fully exposed, and their pockets turned inside out; afterwards they should be hung in the open air, beaten, and shaken. Pillows, beds, stuffed mattresses, upholstered furniture, etc., should be cut open, the contents spread out, and thoroughly fumigated. Carpets are best fumigated on the floor, but should afterwards be removed to the open air and thoroughly shaken and beaten.

V. *Corpses* should be washed thoroughly with the zinc or corrosive sublimate solution, then wrapped in a sheet wet with the solution, and buried at once. Metallic or metal-lined coffins should be used when possible, and *always* when the body is to be transported for any considerable distance.

If these notes of warning and guides to action are heeded, and fear does not usurp the place of common sense, we have little to dread from cholera personally. It is the unthinking multitude, the selfish egotist, the "wait-until-it-comes" people, that we have to fear. "An ounce of prevention is worth a pound of cure," and there is no disease to which this aphorism so aptly applies as *cholera.*

By order of the Board.

GERRARD G. TYRRELL, M.D.,
Permanent Secretary State Board of Health.

SACRAMENTO, April 24, 1885.

N. B.—Copies of this circular for free distribution can be had on application to the Secretary.

In addition to this circular the following letter was addressed to the press, and a copy sent to the editor of every newspaper in the State, together with a copy of the circular inclosed:

SACRAMENTO, April, 1885.

DEAR SIR: As the late Legislature, by its disgraceful parsimony in sanitary matters, has rendered it impossible for the State Board of Health to distribute generally throughout the State the accompanying circular, and as the information contained therein is wholly in the interest of the people, the State Board of Health is reluctantly compelled to appeal to the generosity of the press to give the contents of this circular that publicity which it alone can do.

By publishing in your paper such extracts as you may deem pertinent to the subject, and calling attention to the necessity of immediate sanitation in your town or city, and the advisability, nay, necessity, of a house to house inspection, you will materially aid the cause of humanity, and oblige,

Yours truly,
G. G. TYRRELL, M.D.,
Secretary of State Board of Health.

Copies for distribution can be had by application to the Secretary.

The effect of this was to enlist the coöperation and active assistance of the press, and in the most generous and unprecedented manner the subject-matter of the circular was given a wide diffusion. As a result, a general hygienic preparation was made throughout the State to receive the expected but unwelcome visitor, and had we been so unfortunate as to have realized our expectations by the importation of cholera into our midst, I am confident that the efforts made at the instigation of this Board, and with the coöperation of the press, to cleanse and purify the different cities, towns, and villages of this State, must have averted much of the virulence of the plague, deprived it of many of its horrors, and saved hundreds of lives that, under other conditions, would have fallen easy victims to the disease.

YELLOW FEVER.

During the latter part of the year 1885, yellow fever again made its appearance in Mazatlan and other places upon the Mexican border. As this was a direct menace and a source of uneasiness to our State, it was determined to make an effort to obtain reliable information as to its progress and the extent of its virulence. Accordingly, a letter was addressed to Dr. Wolfred Nelson, who had lately returned from a prolonged residence in Panama, and whose unquestionable familiarity with the disease and his known skill in treating it, would make his opinion valuable and trustworthy, asking him to communicate to the Board his personal knowledge regarding the presence of yellow fever in Mexico, and the likelihood of its reaching this State overland or otherwise. This he very kindly did in the following letter:

GUAYMAS, MEXICO, July 16, 1885.

MY DEAR DOCTOR: During my stay in Mazatlan, from the twenty-fifth of June to the twelfth of July, there has been a number of cases of yellow fever, with three deaths. I send you two newspapers, with two deaths marked. The day I left Mazatlan there were two cases of yellow fever in the military hospital. I am told that the steamships sailing from Mazatlan are provided with clean bills of health. *Verbum sapienti.* I have also made careful inquiry here, and believe this place (Guaymas) to be free of the disease at the present writing. There is a rumor that the disease has reappeared at Hermosillo, the Capital of this State. I know nothing of its truth. As no restrictions are placed on commerce in the Gulf of California, with steamers constantly plying between infected ports, it may be carried about. It was epidemic in 1883, August to December, and killed nine hundred persons in Mazatlan, one hundred and twelve at La Paz, Lower California, two hundred and forty at Guaymas, and over three hundred in Hermosillo. It killed in Mazatlan, La Paz, and here last year. In short, I am firmly of the opinion that the disease is now endemic, and my opinion is held by the leading physicians in Mazatlan. With the very rapid railroad communication now between Mexico and California, its introduction into the Sacramento Valley is very probable. Once there, it will make things "hum." You have the necessary heat, moisture, swamps, etc., and I am fully of your opinion as to the danger that you run. * * * * * * * *

There was no fumigation or disinfection practiced in Mazatlan during the yellow fever epidemic, and the whole place is full of the poison of yellow fever. With very kind regards, I remain, dear doctor,

Yours, respectfully,

[Signed:] WOLFRED NELSON.

To G. G. TYRRELL, M.D., Secretary California State Board of Health.

Several letters were subsequently received from Doctor Nelson, advising the Board of the progress of yellow fever and other epidemic diseases which threatened this coast. This Board having no funds at its disposal for the purpose of placing a quarantine on the frontier, we were practically helpless. However, in September, 1885, the United States Government, recognizing the threatened danger, appointed Dr. T. King Ross as quarantine officer at Nogales, a position which he had most efficiently filled during the preceding year. At this time the yellow fever was epidemic in Sonora, Mexico, and as Nogales was the favorite resort for those fleeing from the pestilence, a quarantine officer was absolutely necessary to protect us as far as possible from the invasion of the disease into California. Anxious to get all the information that might aid us in our endeavor to save the State, under instructions from the Board, your Secretary, in October, 1885, wrote a letter to Dr. B. R. Carman, an experienced and accomplished physician at Mazatlan, asking his views upon yellow fever and its progress. The doctor had removed to Rosario, a mining town in the State of Sinaloa, and some distance from Mazatlan, and therefore did not receive the letter until some weeks had elapsed. However, on November 8, 1885, he replied in a very interesting letter, parts of which, bearing upon the subject, are here quoted. He says, speaking of yellow fever:

The persons mostly attacked are those who have recently come into this zone, either from abroad or from neighboring States. In Acoponeta, a town some seventy miles to the south from here, on the road to Tepic, in the State of Jalisco, and at Santiago, further south, during September and October the epidemic was very severe. From these places it was brought to these mineral districts, and to others on higher altitudes, some three thousand feet above the sea level. Here in Rosario, a mining town of some seven thousand inhabitants, and in the surrounding villages of Chamelta, Las Vegas, Cacalotan, Esquinapa, etc., containing as many more, the number of cases this season have been small, and perhaps not so malignant as those of the years 1883 and 1884.

In Presidio, or La Union, half way to Mazatlan, there has been a number of cases, but they were chiefly among the soldiers, who came from the States. In Mazatlan the same has happened, with the exception of a few strangers who arrived there from abroad at the so called hotels of that place. Neither is it to be wondered at that these are readily infected. These hotels have been nests of disease since the fever started. Their cesspools and their privies are in the most horrible condition imaginable, and remain so. The rooms and beds are few, and are used over and over again with each new victim. Such a thing as cleaning, disinfecting, or burning any clothing or bedding would be to the landlords preposterous. As to sanitary methods or Commissioners, it is ridiculous! Yes; in Mazatlan a Board of Health exists, composed of the Prefect or Chief of Police, a native doctor, and some others; but the less said about it the better, for they do absolutely nothing that their wisdom should induce them to do for the sake of the public health; and if they should recommend some useful measure it would not be adopted, for want of funds, as this fact is always given as an excuse.

In my career as a practicing physician in Mazatlan for many years I have often recommended sanitary improvements to avert threatened epidemics, such as to prevent the throwing of all the filth and human excreta from hospitals, prisons, and dwellings, and the deposition of dead animals along the beach in front of the city looking west, from whence all the fresh winds come to us; but I have only been snubbed by the authorities and ridiculed by the people that I should care to interest myself in such matters. It is the same, or even worse, in the smaller towns, as for instance: A few days ago I was called to see a woman who had recently come to town from the interior, and who had been ill two or three days with fever. As I entered the shabby little mud house, which was without windows, and as it was raining and the sky cloudy, the room was very dark, I asked for a light, and saw that the woman was very ill, having a temperature of 106°. As she moved for me to examine her she vomited a quantity of unmistakably black matter; to satisfy myself whether there was any undecomposed blood present, I had the vessel taken to the light at the back door of the room, and having satisfied myself, the woman who held the vessel deliberately threw the contents into the yard from where she stood. No sooner had the vomited matter touched the ground than hogs and chickens rushed at and devoured it. Such scenes are constant here, there being no closets in the towns, except among a few wealthy families and foreigners.

This terrible scourge had never been known to the present generation in this part of Mexico until recently, and if proper sanitary measures had been adopted to stamp it out, as has been done elsewhere, undoubtedly we would be free from it to-day. I fear that now its germs are so thoroughly disseminated in so fertile a soil as it finds among so much ignorance and filth, that it will become one of the institutions of the country, and help to retard all progress and civilizing influences on this western coast. It is impossible to judge of the actual extent of the epidemic, or of its mortality, with the condition of things that now exist. The relapsing fever, which was prevalent, was considered as a mild form of yellow fever, and as a relapsing fever is seldom fatal, all recoveries were accounted as recoveries from yellow fever. The fact was, that all cases of yellow fever that had advanced to the stage of vomiting black matter, or had hemorrhage, proved fatal with but few exceptions. True, the disease had never before occurred here, and all were ignorant of its etiology, clinical history, or its more advanced treatment. The consequences have been severe upon its victims. * * * * * *

I remain, dear doctor, yours truly, etc.,

B. R. CARMAN, M.D.

ROSARIO, November 8, 1885.

We thus have learned from the above and other correspondents, whose probity is unquestioned, that the frightfully fatal disease known as yellow fever has positively located itself close to our borders, and hereafter will be a constant menace to our safety. Fortunately for us this last year, the advent of Winter seemed to arrest the disease, otherwise we might have had reason to deplore the parsimony of the Legislature that refused a contingent appropriation to guard our frontier from the invasion of this most dreaded of all the infectious diseases. And we now take this opportunity of warning our legislators, that if, through their apathy, neglect, or parsimony, yellow fever once obtains an entrance into our warm valleys, where all the adjuncts are present to insure its development and diffusion, the injury it would do our State is beyond computation, not only in the sacrifice of valuable lives, but in the deterioration of property values, as no one would care to live or own property in a region cursed by yellow fever. As in Mexico, so would it be here; there for years, in certain parts, the disease was unknown, but being once introduced it has taken up its abode permanently to the lasting injury of the country, and the almost total destruction of its valuable foreign trade.

SMALLPOX.

This disease being so extensively prevalent in Canada, in accordance with instructions received from this Board, I placed myself in communication with Secretaries of other State Boards in the East, in order that I might obtain such information upon the progress of smallpox that the Board might have an opportunity of at least warning the people of this coast of its approach, and advising such precautionary measures as might seem best to retard its advance. From the information thus obtained, the deduction was drawn that our danger from smallpox was much greater by way of China, Japan, and Mexico, than by that of the Eastern States, as we found that the States bordering the Canadian frontier were strictly guarded by able and efficient quarantine officers, and all travelers coming from the infected districts were subjected to a rigid inspection, and if necessary, vaccinated before being allowed to proceed into the United States. Our intercourse with Mexico being by rail as well as by sea, the liability of the conveyance of smallpox by immigrants is very great. In fact, the only cases we had in this State in 1885 were two cases imported into Los Angeles County from Mexico. However, the local Board of Health being ever on the alert, detected, and by strict quarantine and other sanitary measures, confined it to the persons attacked, and prevented its further spread. In July, 1885, a letter was received from Dr. Wolfred Nelson, who was then in the Gulf of California, reporting the appearance of smallpox there; the number of cases was not known. The vessel upon which the disease appeared was quarantined, and no extension of it took place. In Japan the disease was quite prevalent during the year, and as it prevailed in the seaports of the Empire as well as the interior, the probabilities of our being infected through some way passenger was very great, and required the constant vigilance of Dr. McAllister, the efficient Quarantine Officer in San Francisco, to prevent its importation. In the early part of the present year, 1886, a case was discovered on the steamer Belgic, plying between China, Japan, and San Francisco. It was, as soon as discovered, quarantined by the ship's surgeon, and all the unvaccinated passengers at once vaccinated, which may account for the immunity from infection which the passengers on the voyage experienced, as there is no fact in the whole range of preventive medicine so clearly demonstrable than that the natural susceptibility to smallpox in the individual can be completely destroyed by vaccination, so that one so protected can fearlessly pursue his usual vocation with impunity amid the presence of this most contagious disease. And yet, with this fact so clearly demonstrated all over the civilized world, we find a class of persons in an old city like Montreal so blind to their own interests, and to the commercial interests of the Province, as to resist with riot and bloodshed the attempt to confer upon them this wonderful immunity from one of the most loathsome plagues known. Not only was the philanthrophic efforts of humanitarians scorned, but bitter denunciations were heaped upon, and even personal violence offered to the physicians who attempted to explain the benefits of vaccination, or enforce its adoption. Even in this State there are not wanting persons, who ignorantly consider that it is a breach of the liberty of the citizen to compel him to be protected by vaccination, or have the same blessing conferred upon his family. Hence the difficulty the State Board of Health finds in its endeavor to procure a law which would be general in its application to all unvaccinated persons; and until ignorance is banished by education, and superstitious fear by enlightened thought, I expect the same opposition will be experienced in every endeavor to benefit humanity in general by a proceeding that is susceptible of misrepresentation by prejudice, credulity, or the delusive fears of the illiterate. It is, however, to be hoped that a law making vaccination compulsory on all children attending the public schools in this State will be enacted without a dissentient voice by the incoming Legislature. This in itself would save hundreds, nay, thousands of lives, should we be so unfortunate as to have an epidemic of smallpox develop among us. It would not, however, save those children under school age who had not been rendered insusceptible to the disease by vaccination, or those exposed to it, who, by reason of inefficient, degenerated, or unperformed vaccination, were liable to be attacked. We do not believe the masses of the community are sufficiently well informed to understand the necessity of a law making a general vaccination compulsory, although we do believe that the State Board of Health should have legal power to enforce a general vaccination if deemed necessary to protect the people from smallpox. In England vaccination is compulsory; so it is in Scotland, Ireland, Germany, Sweden, and Belgium. In France it is not compulsory, except in governmental and some private schools. As Simon says, the main object of an obligatory law is not to prevent adults from cultivating a personal taste for smallpox, but to prevent them compelling their children to incur the worst perils of that disease. Or, as Dr. J. M. Toner, of Washington, D. C., puts it: "Parents and guardians have no more right to withhold or neglect to provide vaccination for their children under their protection, than they have to jeopardize the lives of these helpless infants by not furnishing them with food and clothing. It is criminal to neglect either, as death may be the consequence; but the failure to provide protection against smallpox seems to be more maliciously wicked than to neglect either food or clothing, as the former may not only cause the death of the child, but be the means of spreading disease and death among many others, while the evil which arises from the latter ceases with the death of the victim."*

We, however, are convinced that there is a steadily advancing knowledge of sanitation taking place among the people of this favored State, and that public sentiment is gradually but surely coming to the support of all measures tending to improve and render more secure the public health. We believe this to be especially true in regard to preventive measures. The cosmopolitan character of the Californians making them earnest adherents to the doctrine of self protection in regard to life and liberty, they are now beginning to include in that doctrine of protection, the right to health, and that no man ought to have the power, for some puerile reason of his own, to imperil the safety of his neighbor; neither should the ignorance of the individual, of all sanitary appliances and all sanitary laws, debar him from receiving the benefit of those laws which may be devised for his welfare through the instrumentality or enlightenment of others. "The lives and health of its citizens," says Dr. H. B. Baker, in his report to the State Board of Health of Michigan, "is the most valuable property possessed by any government, and whatever in any manner affects these, influences in the highest degree national prosperity."

---

*Compulsory Vaccination, by J. M. Toner, M.D., Washington, D. C.

Our commercial relations with Mexico, both overland and by sea, our constant communication with Australia, China, Japan, the Sandwich and other islands of the Pacific, expose us constantly to the invasion of epidemic and contagious diseases, among which the most frequent is smallpox, and the slightest relaxation of vigilance upon the part of our quarantine officers in San Francisco, rendered so unceasing by the inadequate means supplied in the provision of a proper quarantine station in the bay, might at any moment precipitate the catastrophe which sooner or later is sure to overtake us. It is the part of prudence to anticipate the worst, and by enacting a law making compulsory the efficient vaccination of all children attending public schools, or, better still, all children, we would be placing the most efficient safeguard known around our hearths and homes, and protecting our dearly loved ones from one of the most fatal and most loathsome diseases that ever afflicted humanity.

DIPHTHERIA.

From reports received throughout the State during the last eighteen months, the prevalence of this disease calls for more than a passing notice. Unlike smallpox or cholera, there are times when the appearance of diphtheria in a place cannot be definitely traced to the source from which it came, and although these outbreaks of "*spontaneous* diphtheria" must be classed with other forms of abiogenetic origin, and therefore comprehensible only to those who have faith enough to believe in that doctrine; nevertheless, the acceptance of this belief provisionally would give us at least an explanation of some otherwise unexplicable cases that have arisen from time to time. For ourselves, we do not believe that the disease can arise without infection or contagion from a previous case, and although the germs may elude our discovery, or may have been hidden for months, or even years, beneath accumulated filth, they are present whenever diphtheria appears. Its presence, however, in the absence of a known cause, may indicate, and most likely does, the neglect of hygienic rules and a breach of sanitary law, and the spread of the disease in any city, town, or village either shows the profound ignorance of the people of its contagious character, or a criminal disregard of the lives of others, by those in whose power it is to enforce an observance of those laws of health which govern epidemic disease. The casual relation between dirt and diphtheria has been abundantly shown by many competent observers. What the exact relation is, is one not yet decided, whether the unhygienic conditions of the surroundings, by impairing the resisting power of the individual, may render him more susceptible to the action of the poisonous germ when unexpectedly presented, or that the accumulated filth offers a field for the growth and perfection of the disease germs when once planted therein, either directly from a former sufferer with the disease, or indirectly from the germ being borne on the wings of the wind from some distant quarter where the disease prevailed, is still unknown. We do know, however, that in the presence of perfect cleanliness, and other requirements of sanitary law, the disease cannot exist; or, if existing, can be by care and vigilance completely extirpated, or banished, at least, from the community. The most difficult cases to guard against are those of a mild form, that do not indicate the presence of diphtheria, but only that of an ordinary sore throat. From these simple cases the most malignant epidemic may arise; as, from their apparent simplicity, no precaution whatever is taken to prevent those afflicted from mingling with the public. Parents cannot be too careful in examining the throats of their children complaining of soreness in that region, and if they are expert enough to detect any white spots upon them they should lose no time in consulting their family physician, and until his opinion is expressed to the contrary, treat them as if they had diphtheria. by keeping them in the house aud confining them to a room apart from others of the family. By this means the disease may be restricted to the family in which it has arisen, and prevented from diffusing itself through the community.

In Lincoln, October, 1884, the weather being quite dry, but the nights frosty, the frequency of what was apparently a common sore throat, excited the attention of the residents of that town. Those complaining of it were not confined to bed or the house, and mingled freely with their neighbors. Soon after the weather changed to rain, and after a few days of such weather, instead of the common sore throat, unmistakable diphtheria appeared and speedily caused the death of several children. Isolation was now enjoined, and the infected strictly quarantined. One family left the town to escape the disease, but carried it with them to Sacramento, where the child was treated and recovered. In Jolon, Monterey County, Dr. Moss McGowan writes that in San Miguel the disease appeared in January, 1885, with great virulence, causing several deaths. The doctor describes briefly the surroundings of these cases:

No. 1—Four cases. One fatal, in an old adobe building with small rooms, low ceilings, and little sunlight; well supplying house, shallow, upon low ground, probably contaminated with surface drainage.

No. 2—One case. In adobe similar to No. 1; had more sunlight and better ventilation; situated on river bottom; well deep.

No. 3—Three cases. Very severe; adobe building on river bottom; well probably contaminated by house drainage.

No. 5—One case. Building, frame; surroundings good.

No. 6—Four cases. Two fatal; building, frame and new; situated up in mountain; well in stable yard; habits untidy.

Many other cases in neighborhood have not come under my observation.

Upon receiving this report I at once advised the doctor to use all the means at her command to have the cases isolated and the locality disinfected, forwarding to her at the same time a supply of circulars issued by the Board upon the subject of diphtheria. Dr. J. N. Moss McGowan, who is a remarkably intelligent physician, and fully alive to the value of sanitation, distributed the circulars, and took all the means possible of warning the people of the danger they ran of contagion if proper measures were not adopted to isolate the diseased ones. For a time the disease was checked, but in September a request was made for more circulars, as the disease had again broken out with increased virulence in the same locality where it was prevalent in January. The doctor thinks it directly traceable to contagion from lack of efficient disinfection. Dr. McGowan, also, desired to know if there was any legal means by which such cases could be officially quarantined where no local Board of Health existed, and no Health Officer. To which query I was obliged to reply that there was no law by which infectious disease could be officially quarantined by the State Board of Health, and advised the doctor to state the case to the Board of Supervisors of her county, and request the appointment of a Health Officer, who, if so appointed, would be clothed with all the powers of a local Board of Health. At the same time with the circulars I forwarded the doctor a copy of the health laws of California. In the same month, September, information was received by this Board that diphtheria had become epidemic in Merced, and the schools were closed. I immediately wrote to our correspondent there, Dr. H. N. Rucker, asking the truth of the story, to which he replied as follows:

Dear Doctor: Yours of twenty-eighth just received. Yes, the Trustees were foolish enough to close the schools, and create a great sensation, simply on a rumor. The facts are as follows, and you can judge for yourself: The cases we have had here in town have all died. Of these I have already reported four—two each for the last two months. Two, as reported, were brought here in a hopeless condition last month. I reported two cases that occurred here in town. One was the case of a child, in the hotel where the first two from Mariposa County died; the other was not exposed to the disease, that we know of. There was one death in three cases (all in same family), on the Merced River, last month, and one death a few days since in the same locality. But these I did not report, as my report is confined to this town. We have had a death from the disease a few days ago, and one other child in the same family is now recovering from an attack. These are all the cases that have occurred in the county, that I have heard of. Only two of all the number were of a violent character. The case that created the great sensation was one of ulcerative pharyngitis. There seems to be quite a tendency just now to ulcerative pharyngitis; and we may have an epidemic of diphtheria, but I see no other indication of it now, and do not expect it.

Yours, very truly,
H. N. RUCKER.

Under the vigilant care of Dr. Rucker, I was satisfied the disease would be properly looked after, and such sanitary measures instituted as would best tend to eliminate it speedily if it took an epidemic form. In October the disease appeared in Modesto, and was reported by our valued correspondent C. W. Evans, M.D. He writes that "three cases occurred since October 1, 1885, all in one house, the inmates of which are subjected to the worst possible hygienic conditions, as regards clothing, food, care, and filthy surroundings. No other authentic cases are reported, although throat troubles are prevalent."

In December of same year Dr. Evans reported five cases. Again he writes: "It will be noticed that the death rate from membranous croup is very large. Of the five reported, four undoubtedly had membranous croup; the other case, though doubtful, was much like croup, in the history I was able to get; and though not characteristic, from hearsay evidence was diagnosed as such, and so I report it (not having seen the case myself). The cases of membranous croup all occurred in families where there had been no diphtheria before or since, except one, and only in one instance did two occur in the same family, both of which proved fatal, one occurring two weeks after the other."

In November it was reported to your Secretary that diphtheria was epidemic in Lemoore, Tulare County. I at once wrote to Dr. L. M. Lovelace, our correspondent in that county, to know the truth or falsity of the report. On December 1, 1885, the doctor replied:

Dear Doctor: Yours of twenty-fifth just received. In answer to your questions as to diphtheria being here in an epidemic form, I am glad to say the report is not quite true. We have quite a number of cases, more of an endemic form. It seems to be a kind of diphtheritic croup. All that had it in that form died, and about eighty per cent of all who had diphtheria, that did not implicate the trachea, got well. There have been a number of cases of putrid sore throat, with deep ulcers of the tonsils, that readily yielded to the ordinary treatment; in some of these, membranous or diphtheritic croup, and was fatal in all the cases. * * * * * * * * * * * * * *

Yours respectfully,
L. M. LOVELACE.

In the same month diphtheria prevailed at San Diego. I at once entered into a correspondence with our correspondent there, Dr. Thos. L. Magee, who replied as follows:

Dear Doctor: Yours of thirtieth instant just received; also, cholera circulars, for which accept thanks. Relative to diphtheria in San Diego: First, there is no sewerage in the city; second, the lots are but one hundred feet deep, without intervening alleys, so that water closets are all in close proximity to houses. About the fifteenth ultimo we had quite a rainfall, followed by clear, warm weather. In less than ten days after that there were four deaths reported among children, which were diagnosed, respectively, as diphtheria, one as "hives in the throat," and one as tonsilitis. Latterly there have been no deaths, but there still prevails to some extent among children a livid inflammatory condition of pharynx, with enlargement of the glands, and to my mind clearly diphtheritic in character. * * * * * * * * * * * * * *

Respectfully yours,

THOS. L. MAGEE, M.D.

In March, 1885, Dr. Carl Walliser, then our correspondent in Santa Cruz, reported that diphtheria was very prevalent and fatal in the Santa Cruz Mountains, but owing either to the ignorance or poverty of the families in which it occurred, no physician was called in to treat them. Dr. Walliser very properly called the attention of the Board of Trustees to the presence of the disease, and asked that a local Board of Health be organized, or a Health Officer appointed. No attention was paid to his suggestions and no action taken.

From these extracts it will be seen that the correspondents of the Board are alive to the importance of sanitary measures in their districts, but unaided as they are by local authority, their power for good is simply individual and without compulsory power. Diphtheria has been almost epidemic in San Francisco, and although they have a Health Officer in Dr. J. L. Meares of wonderful executive ability, owing to the absence of penalty for neglect of notification of the Health Officer by the attending physician, cases of infectious disease, like diphtheria, are allowed to spread their poison without let or hindrance. The same lack of penalty enables householders to neglect the law upon this subject with impunity; under these circumstances it shows the vigilance and care exercised by Dr. Meares in keeping the disease at all within bounds. Wherever diphtheria has appeared and spread, it is not owing, as a rule, to the want of sanitary knowledge upon the part of the physicians in charge, but to the deficiency of legal means to enforce the sanitary measures desired by the physicians. It is impossible to compel people to obey ordinances or laws where no punishment is awarded for neglect or disobedience, and until the law is so amended as to carry punishment with its breach, the endeavor to compel people to be healthy will be futile. Diphtheria has been a visitant in all parts of the State, not only as far south as San Diego, but away north in Siskiyou, not in an epidemic form, but endemic cases have been noted, from time to time, throughout the year. As population increases, and buildings and dwellings get closer and closer, and sanitary arrangements continue to be neglected, the disease and its fatality will also continue to increase, unless the Legislature come to our aid by giving the State Board of Health sufficient legislative power to compel the organization of local Boards of Health or Health Officers in every city, town, and village in the State where such has been neglected or refused by the regularly constituted authorities.

SCARLET FEVER.

The mortality from this infectious fever has been limited, considering the extent of country over which the disease has prevailed. The type being mild, no precautions seem to have been taken to prevent its spread, consequently its germs being very tenacious of life, it need not surprise us to see an outbreak of the disease at any time that conditions favor it, which may assume a virulent type, the mildness of type at one season being no guarantee of its continuance as such. There was an epidemic of scarlet fever in Modoc County which caused several deaths. It prevailed quite extensively in Tehama County, in Butte County, also in Shasta County and Los Angeles, but in none of them was the general type virulent. In May of this year I visited Truckee, at the request of the Superintendent of Schools, to investigate the nature of a disease which had caused and was causing considerable uneasiness to the inhabitants, who had induced the Superintendent to close the public schools. It was reported by one physician to be rothlen and spinal meningitis; the other physician as emphatically declared the town free of measles or spinal meningitis, but was afflicted with scarlet fever. After a thorough inspection and conversation with all the families in whose houses the disease had been, I obtained indubitable evidence that the disease was scarlet fever, and that it had been carefully propagated by permitting the sick to mingle with the well, by public funerals in the houses of the dead, and in the churches. Indeed, I found persons with the skin still desquamating freely mingling with the community without a thought of danger to themselves or others. I at once called the attention of the physicians to the nature of the disease, and the injury likely to arise from permitting those not yet well to visit the uninfected, and also to the sanitary condition of the town, which, after a careful inspection, I found to be in a most insanitary condition. A meeting of citizens was called, to whom I explained the nature of the disease, its very infectious nature, the probable indefinite duration of its stay among them if not thoroughly eradicated by disinfection, the absolute necessity of putting their town in a sanitary condition, the objects of which I explained, and the further necessity of having a Health Officer appointed. The advice tendered was at once acted upon, the Supervisors petitioned to appoint a Health Officer, and it was resolved to have all the houses in which scarlet fever had been or was fumigated and disinfected, and the whole town thoroughly cleansed and kept in a sanitary manner hereafter. This incident shows the necessity of a State Board of Health, and its auxiliary local Boards, to advise what is to be done in a case like the present. Here a whole community were alarmed, and some of them fled from their homes, not knowing how otherwise to save their little ones. Had this town a Board of Health or an efficient Health Officer much of this alarm might have been allayed by vigorously isolating and quarantining the sick, and taking such other precautionary measures as the circumstances might seem to require.

When we reflect upon the nature of scarlet fever and its sequela, and think of the many lives which, if not immediately sacrificed, are permanently disabled for the conflict which awaits them in the battle of life, that are in fact invalided on the threshold of existence by one of the various ailments ingrafted into their system as a result of this disease, we cannot be too prompt or too earnest in our endeavors to prevent the invasion of the fever, or, if it has already appeared, to annihilate it as speedily as possible. Better one household should be put to temporary inconvenience than a whole community infected; better that a whole town be quarantined rather than have such a treacherous disease spread over a county, with death and untold misery following in its trail. In such an emergency as this, it is almost impossible to demonstrate the value of an efficient local Board of Health for its ability to instruct the people in the causes of the disease, to warn them of its serious results, and their power to prevent avoidable evils; to prevent nuisances, or abate them when they exist; to be ready to meet promptly any sudden peril from epidemics; and to bring to bear with alacrity the power of the law when other means fail. In matters appertaining to health, there is nothing so efficient as proper organization.

With it the removal or prevention of all communicable disease is possible, or if not, its power to lessen the ill effects of preventable disease is unquestionable.

MEASLES,

Have prevailed to some extent in many places throughout the State. In none of them did the disease assume a malignant form, or call for any extraordinary sanitary measures at the hands of your Secretary.

The question has been asked whether we are justified in requiring that the dwellings containing those sick with measles be quarantined and the patients isolated? The objections to it being these:

First—That measles, although infectious, is usually not a very fatal disease, the deaths, when produced, not being from the measles *per se*, but from complications engrafted upon the disease.

Second—That if fatal, it is much less so in childhood and youth than in adult life; and as it is an exanthem that protects for life, better to have it when young than when advanced in years.

Third—That owing to the early disengagement of the furfuraceous dust that emanates from the convalescent measly patient, and its easy dissemination through the atmosphere from its lightness, a quarantine would entail great hardship, and be utterly useless for the purpose instituted, as the diffusibility of the infecting medium could not be confined within the walls of a house, and that once outside, its power of infection must be unlimited.

These reasons, although very cogent, and containing a great deal of truth, should not permit us to relax the rule of preventing, where possible, the spread of communicable diseases. Measles are usually mild; but who can prognosticate when they will be mild, or when black and malignant? By relaxing our vigilance we may admit an enemy into our midst that will decimate the people like a plague.

Children should not be admitted into school until at least two weeks have elapsed since the disappearance of the rash. Their clothes should be thoroughly fumigated, and their dwelling place disinfected. Having done everything within our power to limit the spread of the disease, we will have the inward satisfaction of knowing that any subsequent sufferer will not have been endangered by any carelessness or neglect of a plain duty upon our part.

TYPHOID FEVER.

This insidious disease, which may truthfully be characterized as "the pestilence that walketh in darkness," has not exceeded its usual mortality throughout the State, judging by the reports received during my term of service. Unfortunately the statistics from which some deductions might be drawn of its relative frequency or mortality, in any particular part of the State more than in another, are so defective as to be useless for that purpose. This is the more to be regretted from the fact that in the last report of the State Board of Health of Michigan, an able article was written by the distinguished and efficient Secretary of that Board, Dr. Henry B. Baker, "Upon the Relation of the Depth of Water in Wells to the Causation of Typhoid Fever," which might have received some confirmation, or otherwise, in this State, if we had reliable data of the exact mortality which occurs from year to year. We are convinced, from many years' experience and observation, that typhoid fever is more prevalent in this State during the Autumn and early Winter months than in the Spring; and depending, as we believe it does, upon local conditions appearing in dwellings where no expectation of such a disease would naturally arise, and again remaining absent from localities where it might be supposed it ought to prevail, we are naturally led to inquire into the reason of this prevalence of a supposed particulate disease at one season of the year more than another, and what relation the disease bears to the circumstances surrounding it. Dr. Baker believes that the prevalence of typhoid in the Autumn months depends, in a great measure, upon the condition of the wells, and the quantities of water contained therein control the rise and fall of fever. Although Dr. Baker is not fully convinced, but continues undecided, as to whether the contagium of typhoid is a specific organism or otherwise, "he *can* say that the cause is associated with decomposing organic matter of vegetable and animal origin in drinking water, and that it appears to be capable of reproduction, thereby making it extremely probable that the cause is organic, and probably one or more of the bacteria; many of such organisms are known to be able to reproduce themselves in meat juices and other fluids consisting of water and *animal* products: also in *vegetable* infusions, and even in *mineral* solutions not directly derived either from animals or vegetables, as, for instance, in Pasteur's solution. Yet it is probable that by proper effort we may soon learn the truth—whether typhoid fever is ever caused by more than one species of bacteria, whether the cause of every case is derived from a previous case."

A comparison of the meteorological and other conditions led Dr. Baker to conclude that no circumstances known to him varied in such a manner as to explain the unusual prevalence of typhoid fever in certain months, except the condition of the ground water, as indicated by its lowness in wells; and he explains this by supposing that when the ground is parched and dry the surface supplies of drinking water, wash water, etc., are diminished to such an extent that unusually large drafts are made on the wells. This increased use of well water would lead to the drainage of an unusually large territory around the wells, with a consequently increased danger of contamination from privies infected by typhoid excreta.

Max V. Pettinkoffer, who has given this subject much attention, is of the opinion that the increase or decrease of typhoid fever coincides with the rise or fall of the subsoil water, increasing as the water falls, and decreasing as it rises; and explains it by the assertion that with the recession of the water the air enters deeper layers of soil, and there stimulates into activity and multiplication disease germs, which were dormant so long as they were submerged in water. These germs permeate this ground air; and whenever the barometric pressure is low, or other conditions favor its upward movement, the germ laden air rises from the soil, and enters houses, and causes typhoid fever.

I believe, myself, presupposing the germs to be present, that both theories contain a vast amount of truth. In this State a perhaps quite similar condition of things exists at certain seasons. As the rivers fall, the marshes and ponds dry up, and the subsoil water on the highlands attains its lowest level, we find that malarial and enteric fever prevail; but this connection is not invariable or applicable every year or for all places. In San Francisco, for instance, as shown by Dr. A. Perry, typhoid fever prevails more intensely during the rainy season, when the streets are washed and the sewers flushed with water. In these cases, Pettinkoffer's ground air, rising from the pressure of water, may account for the prevalence of the fever; and in the interior, where wells are used, the surface drainage being diverted from its usual channels to the lower wells, may, through the contaminated water, be the exciting cause of the disease. It is, however, remarked that in Sacramento, if typhoid fever prevails to any extent it is in the Autumn, when the water in the river is lowest, or after the first rain succeeded by dry and warm weather; and in the highlands and foothills it is much oftener observed after the first rains, when the wells receive the surface water. We are therefore led to look beyond either atmospheric or telluric influences for the cause of this fever, and seek it among the particulate poisons which are neither vaporous nor gaseous but endowed with life capable of reproduction, and therefore dependent for their existence upon certain local conditions which may be totally independent of the state of the water, but which are always insalubrious, and without which the particulate germ would cease to live.

Although it has been asserted by such very competent authorities as Murchison, Leibermeister, Hudson, and others, that typhoid fever "may be generated independently of a previous case, by fermentation of fœcal and, perhaps, other forms of organic matter," on the other hand as competent observers as Budd, Parker, Von Geitl, etc., are of the opinion, which even later authorities seem to confirm, that neither filth, fœcal matter, sewer gas, or unpleasant odors are, of themselves, capable of generating typhoid fever without the presence of the specific germ upon which the disease depends. Be this as it may, all are agreed that filth and excrementitious matter, without the free access of pure air, and sewer gas and noxious effluvias under the same conditions, may become potent secondary factors in disease, and by their presence develop and fructify a poison that otherwise could not exist. Dr. Geo. M. Kober, U. S. A., stationed at Fort Bidwell, a highly intelligent and observant physician, to whom this Board is indebted for his zeal as a sanitarian, writing from his post November 2, 1885, says:

> That most of the cases of typhoid fever, as reported by me, occurred at or near a settlement known as "Davis Creek," in Goose Lake Valley, although three cases originated here in Surprise Valley and its southern portion. Some cases were also noticed in the vicinity of Cedarville. The increase of typhoid fever in both valleys, in view of the low stage of water in the lakes, of which there are a number, covering nearly three quarters of the area of both valleys, together with a protracted dry season, strikingly confirms Pettinkoffer's theory "that the increase of typhoid fever coincides with the fall of the subsoil water, and with the recession of the water the air enters deeper layers, and these stimulate into activity and multiplication disease germs, which were dormant as long as they were submerged in water." In reference to the cases observed in this section, I must say that in addition to actual recession of the subsoil water, as shown by the lowness of wells, the surroundings invariably suggest soil pollution and other insanitary conditions. In eleven years' experience on the frontier, I have observed that generally the last thing which the "pioneer farmer" provides is a suitable privy. Sometimes a large family live on a farm for years without this convenience, the fœcal matter is deposited somewhere, and by the children usually not far from the dwelling or well. In many instances, when the privy is finally provided, no attention is paid to the prevailing winds, proximity to wells, and disposal. Is it a wonder, then, that after a few years so many families suffer from the ravages of such "filth diseases" as diphtheria, typhoid fever, etc.? The freedom which the garrison of one hundred and fifty people has enjoyed from these diseases during say five years service, can only be explained by the following facts: Prevention of soil pollution by strict attention to cleanliness, proper care of privies, and absence of wells. The water used is conducted in pipes from a clear mountain stream, but even mountain streams may be polluted by beaver dams, cattle, and horses. In fact, I have frequently drank water from mountain streams during the late Summer and Autumn months which had a perceptible taste of cattle manure, and wondered whether Dr. Smart had possibly overlooked these sources of ammonia when he prepared his article on mountain fever, etc. (American Journal Medical Science, 1878). In regard to enteric fever at this post, it is true a few cases have occurred, but these happened in recent arrivals from other localities. Indeed, the evidence seems to point to the fact that a soldier may imbibe the germs of typhoid fever at Jefferson Barracks, Missouri, may travel thousands of miles and arrive here after an interval of twenty days, either ill or in a condition to develop the disease within a few days. * * * The frightful mortality from typhoid fever at Davis Creek was due chiefly to the intensity of the abdominal lesions, with perhaps some injudicious nursing or rather mistaken kindness of friends. You can imagine a room 12x15 filled with eighteen sympathizing friends willing to "sit up with the patient and keep each other company." The effect upon the patient can well be surmised, yet this is a custom of our good well meaning country

folks. In many other communications received from correspondents the general impression seemed to prevail that the poison of typhoid fever was more frequently conveyed by means of drinking water than any other way, and that those cases of so called spontaneous origin depended upon an anterior cause, which, while not discovered, was certainly discoverable, if the means were adapted to the end. In the Caterham epidemic, which occurred in England in 1879, three hundred and fifty-two cases and twenty-one deaths occurred from the pollution of the water supply of two towns by excrement of a single workman. In Lausanne, in Switzerland, the typhoid poison was conveyed by water nearly a mile through porous earth, and was traced to a single family on the other side of the mountain ridge, whose dwelling was situated close to a brook, into which the dejections of the patient were thrown. This brook was used to irrigate some meadows near the farmhouse, and the effluent water filtered through the intervening mountain to a spring used in the houses of Lausanne, except six that were supplied with water from private wells. In these six houses no case of fever occurred, while in the others scarcely one escaped. The passage of water from the irrigated meadows to the spring at Lausanne was proved by dissolving in it at the meadows 18 cwt. of common salt, and then observing the rapid increase of chlorine in the spring water. But the most important and interesting experiment consisted in mixing uniformly with the water 50 cwt. of flour, not a trace of which made its way to the spring, thus showing that the water was *filtered* through the intervening earth and did not pass by an underground channel. It affords a clear warning of the risk attending the use, for dietetic purposes, of water to which even so called purified sewage gains access; notwithstanding that as at Lausanne such water may have been used with impunity for years, until the moment when the sewage became infected with typhoid poison. ("Public Health," April 14, 1876.)

This extract shows conclusively the fallacy that water purifies itself within any reasonable distance from the source of infection, and the obvious conclusion to be reached is that any water exposed to the contamination of sewage or other forms of filth should be regarded with the gravest suspicion, as neither chemical analysis or microscopic examination has been able to detect the subtle poison to which the fever is attributable. Water which is unobjectionable to the senses of sight, taste, and smell, may nevertheless contain the morbific agents capable of propagating this and other forms of disease. It is therefore of the greatest importance to the health of a community that the strictest scrutiny should be exercised with respect to the supply of water. Every case of typhoid fever should be, if possible, traced to its source, as one of the commonest factors in the etiology of the disease may be found in the water consumed.

TRICHINIASIS.

In March, 1886, Dr. W. D. Groton reported that four cases of trichiniasis had come to his notice during his practice that month. This acute febrile disease having hitherto escaped observation in California, at least as far as known to the writer, or can be ascertained through inquiry among his professional brethren who have long resided in the State, I at once wrote to Dr. Groton, believing the matter to be one of unusual importance to the welfare of the State and its people, and asked him to furnish me with a report of the cases, and likewise a sample of the meat to the ingestion of which the disease might be attributable. The doctor very kindly and promptly responded in the following letter:

Susanville, Lassen County, April 13, 1886.

Dear Doctor: I will give you all the data I can gather on the subject. I would like to be able to write more explicitly, but the ignorant prejudice of the family has proved an almost insurmountable barrier to all investigation. I was requested by one of our druggists, on the eleventh of February last, to call upon Mr. S., an Italian living in the foothills, about seven miles from Susanville. He had been sending medicine to them for over a week, and now they wished him to go out, but for prudential reasons he turned them over to me. I found Mr. S.'s brother and a hired man both in bed with the following symptoms: Face œdematous, eyes swollen and shut, hands, feet, and ankles also swollen and tender to the touch, pulse one hundred, temperature one hundred and one, tongue heavily coated. There was anorexia, thirst, severe diarrhœa, and in one case difficult micturition. Mr. S. and his wife had suffered similarly the previous week, but had taken, she said, "physic," and although not well was able to be about. I had never seen a case of trichinosis, but the symptoms were very suggestive, and when I found that they had all been eating Italian style of raw sausage, I hazarded the diagnosis, and asked for some of the delicacy to bring home with me to examine, leaving such remedies as seemed indicated. Upon reaching my office I proceeded to examine the sausage, but not having much experience in microscopy, and my instrument not being well adapted to the work, I did not succeed in demonstrating the presence of trichina to my satisfaction; so I sent some specimens to Prof. Lane, with a request that he would have them examined. In the meantime, Mr. S., offended, I presume, by the aspersions cast upon his pork, called another doctor, who at once pronounced the disease typhoid fever, and I was made the occasion of considerable pleasantry by some of the wiseacres of the vicinity. I soon received letters from Dr. Lane and Dr. A. Abrams, confirming my diagnosis, and then I sent you some specimens, and the result of your investigations tallied with the reports of Drs. Lane and Abrams. Still Mr. S. violently repudiated the combined testimony, and the family, consisting of six persons, shut themselves up and refused to give any reliable statement to any one. This much is, however, I think substantially correct, viz.: that his hogs had been killed some days apart and the meat made up, with a large proportion of beef, into two separate lots of sausage. A few days after the second lot had been made, the symptoms above enumerated appeared, and soon the whole family were sick except two children, and these they claim had not been sick, although they likewise had partaken of the sausage all the time, but this part I take *cum grano salis.* There has been temporary improvement or sudden relapses with them all; but so far no deaths. The two males and one sister have recently been taken to Carson to consult a Chinese doctor! So probably there will be a chance for an autopsy yet. The two hogs killed were natives raised in the neighborhood. One of them only was diseased. In my opinion the cases are altogether sporadic, and if the thoroughly cooking of pork be a sure prophylactic, I do not believe that we will have any more cases in this county. * * *

Yours very truly,

WM. D. GROTON, Susanville.

Upon examination of the sausage sent me by Dr. Groton under the microscope, I discovered numerous trichina in each slide examined. Some of them were capsuled, and some free. It was therefore deemed prudent to advise that all the sausage made by these Italians be destroyed by fire, and any hogs showing symptoms of fever be killed and their carcasses burned. Soon after the recognition of these cases, information was received that Dr. W. S. Taylor, of Livermore, had discovered a case of trichiniasis in his district. At once communicating with him, I learned that the subject was a German aged nineteen, an employé in a meat shop; ill four weeks. The first day the doctor saw him he complained of slight sore throat and "soreness in his bones;" tongue was coated and bowels constipated. At the end of the first week said he felt good, but was tired; temperature 102, pulse 100, heart's action tumultuous, bowels still constipated, urine copious. Second week, temperature 103, pulse 108, sleepless, with marked prostration; nose bled two or three times. Third week, temperature 102, pulse 110; sleepless, complained frequently of being tired; urine scanty, no desire for nourishment; diarrhœa, with ochre-colored stools: tympanites very well marked; very slight tenderness over abdomen. Latter part of third week, there was marked swelling of feet and some soreness of muscles, but the latter was not very pronounced. Fourth week, temperature declined, pulse increased to 120; swelling of feet increased, which also showed itself in the hands; the œdema rapidly extended to legs and arms, and then to the body, when he complained very much of the soreness in lying, and also when moved; neither face or head became œdematous; urine passed to-day, 24 ounces; diarrhœa continued to the last; no vomiting at any time; very slight delirium during the last week. Although previously interrogated, did not admit that he had eaten raw pork until the day before death, when he stated that he had eaten some fresh pork and beef chopped together and seasoned with salt and pepper: this he had eaten raw about one week before illness began. The source of the diseased pork is unknown. The hogs for this shop are purchased from all parts of the valley, and kept together until needed for the market.

During the past Winter, Dr. Taylor says, "a great many hogs have died in the San Ramon Valley, fifteen miles from here, from a disease which is called quinsy; and by our local paper to-night I see there are some dying about here from hog cholera. I am not versed in diseases of the hog, but will carefully look into the matter."

The muscular fiber taken from this case swarmed with trichina, as shown under the microscope. This is the first case that has ended fatally in California, within the knowledge of your Secretary. It leaves no doubt of the advent of trichina to our coast; and as no means to cure the disease have as yet been successfully used, or, indeed, discovered, it becomes a very important question to decide, how to protect the citizen from the consequences likely to follow the consumption of diseased pork? The only correct method is that pursued upon the European continent, viz., the microscopical examination of the flesh of every hog killed for human use, accompanied by the examiners' certificate that it is sound and healthy. Diseased carcasses are at once condemned and destroyed. If this remedy, under our statutes, cannot be made available, a law should be passed to that effect, the protection of human life being one of the first duties of the citizen. In the meantime, and while the danger threatens the public, it should be widely known that thorough cooking is an efficient means of destroying the parasite; and under no circumstance should any one eat swine's flesh either underdone or raw.

LOCAL BOARDS OF HEALTH.

In the organization of the State Board of Health, among other duties assigned to it, is to place itself in communication with local Boards of Health throughout the State, and take cognizance of the interests of health among the citizens generally. In pursuance of this duty, and to make myself familiar with the names of cities and towns incorporated in the State, that should, according to Section 3061, Article 5, Chapter 2, of the Political Code, have established a local Board of Health, I addressed the following circular to every County Clerk in every county in the State:

To the County Clerk of —— County:

DEAR SIR: Will you inform the State Board of Health of the names of the incorporated cities and towns in your county, and also in which of the towns or cities is an acting Board of Health?

Please answer, and return, and oblige,

Yours, respectfully,
G. G. TYRRELL,
Secretary California State Board of Health.

From the replies received I learned that the Counties of Lake, Trinity, Merced, Kern, Shasta, Modoc, Sierra, Ventura, Amador, Inyo, Placer, Alpine, Calaveras, Mono, and Sutter, had no incorporated cities, and no acting Boards of Health, with the exception of Merced and Modoc, that had organized Boards of Health, and Bakersfield, in Kern County, had appointed a Health Officer.

The incorporated cities and towns in the State are:

San Francisco,
Oakland,
Haywards,
Vallejo,
Dixon,
San Rafael,
Chico,
Eureka,
Stockton,
Yreka,
Gilroy,
Grass Valley,
Visalia,
Sacramento,
Berkeley,
Livermore,
Cloverdale,
Wheatland,
Riverside,
Woodland,
Ukiah,
Etna,
Redwood City,
San José,
St. Helena,
Martinez,
Williams,
Watsonville,
Petaluma,
Healdsburg,
Marysville,
Los Angeles,

Placerville,
San Luis Obispo,
Santa Rosa,
Santa Barbara,
San Bernardino,
Anaheim,
Red Bluff,
Benicia,
Salinas,
Napa,
Antioch,
Colusa,
Santa Cruz,
Sonoma,
Pasadena,
Modesto,
Alameda,
San Leandro,
Sonora,
Suisun,
Fresno,
San Diego,
Mariposa,
Fort Jones,
Santa Clara,
Nevada City,
Santa Ana,
Crescent City.

Of these, the following have organized Boards of Health:

San Francisco,
San Bernardino,
San Diego,
Vallejo,
Watsonville,
Santa Barbara,
Sacramento,
Riverside,
Marysville,
Berkeley,
Napa,
Petaluma,
Stockton,
Woodland,
Los Angeles,
Red Bluff,
Fresno,
Chico,
Santa Rosa.

The following have a Health Officer:

Oakland,
Nevada City,
Truckee.

From these figures we learn that out of sixty incorporated cities and towns that should, according to Section 3061 of the Political Code, have organized and put in operation local Boards of Health, nineteen only have complied with the law. Two incorporated cities have appointed a Health Officer in lieu of a Board of Health, and no less than fifteen counties have no incorporated cities or towns, and consequently no properly organized Boards of Health or Health Officers. It is to be regretted that at least the incorporated cities and towns have not more generally complied with the law, as local Boards are to the State Board what members are to the body—the loss of even one destroys the unity of the structure and leaves a defect in the general perfection of the whole which more or less impairs its usefulness.

The effort to arouse public sentiment to the necessity and priceless value of sanitation as a means of preserving the health and vitality of the community, devolves, in a great measure, upon local Boards of Health, working in their own particular districts. The law clothes them with ample and even arbitrary power to control and remove every danger which, by reason of insanitary surroundings, threatens life or health. It gives into their hands, we may say, the issue of life or death, health or sickness of the community, from preventable disease; we do not say all disease, but we do say all disease the germs of which are bred in decay, fostered in filth, and sent forth on their errand of destruction through uncleanliness and dirt. The responsibility being so great, and the power of doing good so immense, it does seem strange that the inhabitants of the different incorporated cities and towns do not insist upon their right to protection from "the pestilence that walketh in darkness" and the destruction that is already at their doors, only awaiting a favorable opportunity to come forth and slay its victims. But to be useful they must be efficient. Of the Boards already organized many are so only in name; they do not meet once in a year, never report to this Board, and are indeed practically dead so far as usefulness is concerned. We need life infused into these dead Boards; we need cultivation of the public mind to appreciate the value of these local guardians of the public health. When an epidemic of smallpox or cholera breaks out, and when death is reaping the reward of public apathy, carelessness, or distrust, and fear has usurped the place of reason, then the public, in its alarm, cries out to the authorities for help to stay the destroyer; Boards of Health are organized, Health Officers are appointed, and these are expected to do in a few days what is impossible. Had the same community insisted on their Trustees or Councillors complying with the law, in organizing a local Board of Health and appointing and paying an efficient Health Officer, this calamity might not have befallen them. If the law continues to be disobeyed, and cities and towns be left to the ravages of disease, the citizens themselves are alone to blame for it. They have the power to call their servants to account for permitting this wrong to exist, and they have the power to compel a compliance with the law in this serious matter.

Section 3061 of the Political Code of California, relating to Boards of Health, says:

> It shall be the duty of the Board of Trustees, Council, or other corresponding Board, of every incorporated town and city of this State, to establish, by ordinance, a Board of Health for such town or city, to consist of five persons, one at least of whom shall be a practicing physician and a graduate of some reputable school of medicine, and one, if practicable, a civil engineer. The members of the Board shall hold their offices at the pleasure of the appointing power. Every local Board of Health established in this State must:
>
> *First*—Supervise all matters pertaining to the sanitary condition of their town or city, and make such rules and regulations relative thereto as are necessary and proper, and not contrary to law.
>
> *Second*—Report to the Secretary of the State Board of Health, at Sacramento, at such times as the State Board of Health may require:
>
> *a.* The sanitary condition of their locality.
>
> *b.* The number of deaths, with the cause of each, as near as can be ascertained, within their jurisdiction, during the preceding month.
>
> *c.* The presence of epidemic, or other dangerous, contagious, or infectious disease, and such other matters, within their knowledge or jurisdiction, as the State Board may require.
>
> The Trustees, Council, or other legislative Board, by whatever name known, of any incorporated city or town of this State may, by ordinance, adopt any portion of Articles III and IV of this chapter, or either of them, for some definite period of time, as may seem proper for the regulation of sanitary matters within their town or city.
>
> Sec. 2. This Act shall not extend to any incorporated city or town, or city and county, for which health regulations are provided by special statutes.
>
> Sec. 3062. In the place of appointing a Board of Health, the Board of Supervisors, or the city or town authorities, may appoint a Health Officer, with all the duties and powers of the Board of Health and Health Officer, as specified in the two preceding articles.
>
> Sec. 3063. All necessary expenses of enforcing this article are charges against the counties, cities, or towns, respectively, for the payment of which the county, city, or town may levy a per capita tax of not exceeding three dollars, or a property tax of not exceeding one fourth of one per cent yearly, until the same is paid.

Here you have the law explicitly stating that Trustees, Council, or other corresponding Board, *shall* establish by ordinance a Board of Health, or in lieu of that it may appoint a Health Officer; but either must be appointed, if the city or town authorities do their duty.

In the statement within made we find no less than forty-one incorporated cities or towns without either a local Board of Health, or a Health Officer; no one whose duty it is to ascertain the sanitary condition of the town; to take cognizance of the fact whether it is clean or dirty; whether the air breathed by the inhabitants is poisoned by noxious exhalations, or pure and healthy; whether the water they drink is wholesome or productive of disease; all is left to blind chance, and when epidemic disease strikes such towns, or selects such cities for its particular manifestations, the inhabitants thereof wonder how a merciful God can so afflict them, or in so dreadful a manner visit them for their sins. It is lamentably true that in such calamity, the iniquities of the constituted authorities are generally laid at the door of the Almighty. He is blamed when the blame belongs to the people themselves, who will not see the danger that daily threatens their health, until the enemy storms the citadel and slays its hundreds. What is the remedy to correct this apathy and carelessness on the part of the public? The only feasible one that presents itself just now, to compel compliance with the law, is to grant increased authority to the State Board of Health, make it responsible for the organization of local Boards of Health in every city, town, and village in the State; or if this is too autocratic, give it the power that whenever a city, town, or village neglects or refuses to appoint a local Board of Health or a Health Officer, upon due notice being given to so appoint, in such event it shall be privileged itself to appoint such local Board or such Health Officer, as it may deem best under the circumstances. Under such power conveyed to the State Board, you would find within six months that every incorporated city, town, or village in the State would have its local Board or Health Officer. We would proceed further; we would compel such local Boards to hold monthly meetings, and to send a transcript of their proceedings to the State Board under a severe penalty for neglect. This would insure coöperation all over the State, and enable the State Board to take such precautionary measures in case of epidemics as it might deem prudent to avert any threatened danger to health or life.

Unincorporated cities or towns should not be left unprotected. According to the present law the Boards of Supervisors *may*, *in time of epidemics*, appoint for a definite period a Board of Health or a Health Officer; but why an unincorporated city or town is obliged to wait until decimated by epidemic disease before a Board of Health is organized, is one of the conundrums of law that no layman can find out. This Board of Health, or Health Officer, is limited to time, and it is left wholly discretionary with the Board of Supervisors whether they appoint or not. Surely, the citizens of a great empire State like California are alike entitled to protection for their health and lives, whether they live in a city unincorporated or otherwise. If it is discretionary for a Board of Supervisors to allow an epidemic to devastate a town, or if *they* are to decide when or how long a Health Board is needed, then, indeed, equal protection is not vouchsafed to all. The law should be so amended as to make it compulsory on Boards of Supervisors to organize Boards of Health or Health Officers in every unincorporated town, city, or village in the State, irrespective of epidemics or anything else. And to this end efforts should be made to instruct the general public as to the history, the nature, and the means to be taken for the prevention of disease; and by as much knowledge of this kind as is rendered popular, so will the desire increase for the most perfect protection from pestilence that can be attained.

There is no doubt that for the efficient guardianship of the sanitary interest of the State, a Board of Health ought to be organized in every city, town, and village within its borders, and such Boards or Board should be perfectly independent of municipal control, as far as relates to the government of its own body or the election of its Health Officers. It should be composed of citizens of known worth and probity, and, if possible, of those who know and can appreciate the necessity of cleanliness of person and habitation, and the powerful prophylactic virtues of pure water and pure air. One, at least, of each Board ought to be a physician, as should also be the Health Officer, who should be elected for his promptness and energy, and an intelligent acquaintance with the duties to be performed. The Health Officer should be invested with ample power to compel the work done which he thinks necessary to insure the citizens of his community against the inroads of disease and death; it being neither equity or justice to permit one neighbor to suffer for the sanitary ignorance or willful disobedience of another. The greatest difficulty to be encountered in the perfect and harmonious working of the Boards will be met in the parsimony of the appointing powers, in awarding a proper compensation to the Health Officer for the duties he has to perform. The office is a most important one, and a competent officer cannot be expected to give his time and trouble for nothing, or next to nothing. It is ill-judged parsimony to cripple the executive officer of a Board of Health that has the care of the health of the community to look after, as half a dozen deaths from a preventable disease causes more pecuniary loss to the town in which it occurs than twice or three times the pay of an efficient officer who does his duty. When any city or town realizes fully the value of an active, intelligent, and efficient Health Officer, there will not be much trouble made in giving him adequate compensation, but until that point is reached, I fear parsimony and inefficiency will rule the actions of our law-givers.

STATISTICS AND REGISTRATION.

While we believe that we are inhabitants of a State exceeding all others in the salubrity of its air, in its diversity of climate, in its general adaptability to the wants of mankind, and its freedom from disease, yet, owing to our defective statistics, we have no means of proving our assertion or showing conclusively that we have less deaths, more marriages, and more babies than any other State in the Union. Our inability to do this is not so much to be attributed to defect in the law as it is from the lack of power to enforce the law. I desire to call your attention to the chapter in the Political Code relating to births, marriages, and deaths, as follows:

Chapter III.

Registry of Births, Marriages, and Deaths.

Section 3074. Registry of marriages.
3075. Registry of births.
3076. Registry of deaths.
3077. Reports to Recorder.
3078. Same.
3079. Duties of Recorder.
3080. Report to Secretary of State Board of Health.
3081. Fees.
3082. Penalties.

3074. All persons who perform the marriage ceremony must keep a registry of the time of each marriage so celebrated, the residence, the names in full, the place of birth, the age of each party, and whether either party has ever been before married.

3075. All physicians and professional midwives must keep a registry of the time of each birth at which they assist professionally, the sex, race, and color of the child, and the names and residence of the parents.

3076. Physicians who attend deceased persons in their last sickness, clergymen who officiate at a funeral, Coroners who hold inquests, sextons and undertakers who bury deceased persons, must each keep a registry of the name, age, residence, and time of death of such person.

3077. All persons registering marriages, births, or deaths, must quarterly file with the County Recorder a certified copy of their register. All such certificates must specify, as near as may be ascertained, the name in full, age, occupation, term of residence in the city or county, birthplace, condition, whether single or married, widow or widower, sex, race, color, last place of residence, and cause of death of all decedents.

3078. If at any birth no physician or midwife attends, the parents must make the report.

3079. The Recorder must keep separate registers, to be known as the "Register of Marriages," the "Register of Births," and the "Register of Deaths," in which the marriages, births, and deaths certified to him must be numbered in the order in which they are reported to him. There must be stated in each register, in separate columns, properly headed, the various facts contained in the certificates and the name and official or clerical position of the person making the report. The Recorder must carefully examine each report and register the same marriage, birth, or death but once, although it may be reported by different persons.

3080. The County Recorder must, every three months, transmit to the Secretary of the State Board of Health, at Sacramento City, a certified abstract of the registers of births, marriages, and deaths, prepared in the manner prescribed in the instructions of the Secretary, and upon blanks to be furnished by him for that purpose.

3081. County Recorders, in those counties where their compensation is by fees, shall be allowed by the Board of Supervisors a fee of not exceeding ten cents for each name reported, to be paid out of the General Fund of the county; and in those counties where their compensation is by a fixed salary, the duties in this chapter provided shall be performed without compensation other than such salary.

3082. Any person on whom a duty is imposed by this chapter, who fails, neglects, or refuses to perform the same as herein required, is liable to a penalty of fifty dollars, to be recovered by the District Attorney of the proper county, for the use of the General Fund of such county.

3083. The Secretary of the State Board of Health must prepare blank forms of said registers for the State Printer, who must print as many copies as the said Secretary shall direct, and deliver the same to the Secretary of State, who shall forward the same, from time to time, and in such numbers as shall be directed by the Secretary first mentioned to the County Recorders of the several counties, who must carefully keep and distribute the same to the persons in the county who are required to keep the registers and make the reports provided in this chapter.

In regard to registration of marriages they can always be obtained, as a license is necessary before the ceremony can be performed. In the case of births it is quite a different matter. The law says that physicians and professional midwives must keep a registry, etc. No penalty for disobeying this section being imposed, of course no one keeps a record or registry, except for their private use. The same neglect obtains in regard to the registry of deaths, and, as a result, no births or deaths are registered or filed with the Recorder.

Indeed, one Recorder to whom I wrote for a record of deaths, replied that for nine years no death had been registered in his books. Another replied that since he had been in office no deaths or births had been filed. and so, throughout the State, the law is practically a nullity, and for the reason that no penalty is attached, except by suit commenced by the District Attorney, and that at his discretion. We all know how loth a District Attorney is to commence suit against his neighbor upon a subject so trivial, in his estimation, as neglect to register his child's birth, or against a physician for neglect to register a death. In fact, no District Attorney will do it, as such particularity in having the law obeyed would insure his defeat at the next election. As a consequence, the law is practically a dead letter in our code, and no reliable statistics are available. Statistics upon any subject are valuable in proportion to their accuracy, it therefore becomes a matter of great consequence to provide such a method of collection of facts in all its details that it may be effective, complete, and reliable. As this can only be done by compelling those acquainted with the facts to record them, and as neither the Recorder or the District Attorney willingly wish to institute criminal proceedings against their townsmen, lest they incur the enmity of perhaps those who are their particular friends, or of their political party, or of some local influence, the law must be so amended as to make the neglect of registration of births, marriages, and deaths a misdemeanor, and punishable by fine or imprisonment, or both, and that the information for neglect be furnished by the Secretary of the State Board of Health upon his failure to receive the returns from the County Recorder. The law should be further amended so as to compel the County Recorder to furnish his abstract every month, instead of at present, every three months. By so doing a much more reliable return will be made, as neglect to register will be at once noticed and the proper remedy applied. In regard to the registration of births it would be only fair to compensate those registering by a small fee of twenty-five cents for each birth registered. This would insure the work done and prevent the plea so often offered, that the State had no right to ask its citizens to do its work without compensation.

The registration of deaths can be insured by the passage of a law requiring a permit to be provided before any human body is interred or cremated within this State. This would compel the officer deputed to issue such permit to keep a record of his proceedings, and by making him, under a penalty, transmit his record monthly to the County Recorder, we would in a few years have statistics of immense value to the welfare of the State, as they would be as nearly correct as human ingenuity could devise. Of course the errors that would naturally arise would be those in regard to the nomenclature of the cause of death, and is inseparable from all records of mortality. We could, however, form a very fair estimate of the general causes of death, the influence of locality, employments, habits of living, etc., which would tend to fix the value of human life in California in regard to life insurance annuities, etc., and enable this Board to take more complete cognizance of "the interests of health and life among the citizens generally."

This Board is also required to make sanitary investigations and inquire respecting the cause of disease, especially epidemics. Now, it is a fact that no sanitary improvement worth the name will be effective, no matter what Act we pass or what power we confer upon officers, unless we can create an intelligent interest in the matter among the people at large. You cannot make a population cleanly or healthy without its coöperation or against its will. We must, therefore, have not only the power to enforce sanitary laws, but we must have intelligent Boards of Health to educate the masses to the necessity of healthy homes if they would have healthy lives: and here our greatest and our most important allies in sanitary reform will be the women of California. If we can only enlist them as executive officers under the banner of the Sanitarian, the progress of the work of educating the masses to the necessity of sanitation would be comparatively easy. To facilitate this work, we must again insist upon a law compelling the organization of Boards of Health in every town, city, and village in the State containing a population of five hundred inhabitants or over, to see and personally supervise the carrying out of the registration laws: to see that no one is buried or cremated without a permit, and to instruct the population under their charge in all matters appertaining to the sanitary care of their persons and homes.

These Boards should also be compelled to notify regularly the State Board of the prevailing sickness or presence of epidemic disease, wherever it occurs in any part of the State, to enable it to print and distribute such circulars or pamphlets among the people as would most likely call their attention to the means to be adopted to lessen the sickness or mitigate the virulence of an epidemic, if such should occur. Such reports and statistical investigations would enable us to measure with some precision what advances medicine was making in our State, what contagious or epidemic disease had been prevented or kept within narrow limits, what diseases had disappeared, and the frequency and fatality of others had been diminished.

To enumerate all the advantages that must result from improved health laws faithfully administered, would occupy more space than is possible to assign to them in this report. The arguments and illustrations which might be presented setting forth the value of systematic and thorough registration of vital statistics, would fill volumes. Suffice it to say, in the words of an eminent sanitarian, "registration teaches us every day that which every day should be brought to our knowledge, that we may and do, in a large measure, weave the web of our own life. That death being, for the most part, the result of influences by which we are surrounded, we have it greatly in our own power to make those influences conducive to life, or to our destruction. Our habits either make or mar us. Our eating, our drinking, our clothing, our personal cleanliness, our school rooms, our church buildings, and even our legislative halls; the air and situation of our houses, our houses in their construction, material arrangement for heating, lighting, and ventilation—their very newness; our occupation, our education, etc., all alike have an influence for good or for evil, and all alike come strictly within the province, within the legitimate consideration of the vital statistician."

It is, therefore, to be hoped that our Legislature will give this most important subject its earnest attention and consideration, and so alter and amend our laws relating to health, that sickness and the suffering consequent thereto may be lessened or averted, the rate of our mortality diminished, public health improved, and human life prolonged. We have no hesitation in saying that this result can be in time attained by the compulsory appointment of local Boards of Health in every town, a systematic registration of births, marriages, and deaths, and an empowering of the State Board of Health to enforce, by legal notification or otherwise, whatever sanitary or health laws are neglected or ignored by those whose duty it is to see them faithfully executed.

VACCINATION.

In this century the efficiency of vaccination as a prophylactic against smallpox needs no verification or elucidation by argument. The civilized world acknowledges it; there only remains, therefore, to us, the question: How can the adoption of this inspired discovery of the immortal Jenner be made universal over the State of California? As Californians we are particularly interested in this question, as we are especially exposed to a visitation from smallpox, owing to our international relations with those countries where smallpox is, we might say, endemic. Mexico, with which we are related by land and sea, is at this present writing having an epidemic of smallpox in Guaymas. Japan, another neighbor, is also suffering just now from smallpox. The Sandwich Islands are not unfrequently visited by this disease, and in China it is endemic in many of the interior cities. These sources of infection, together with our constant interstate communications, completely encircle us with possible means of contagion, against which we must protect ourselves.

Quarantine may be and is frequently evaded. Sanitary precautions to isolate and prevent the spread of disease is not always successful, by reason of carelessness or inefficient action, or some fortuitous accident may evoke the disease from some source the possibility of which may have been forgotten, and the box of Pandora be opened to spread havoc and dismay among us. Happily, hope lies at the bottom, and its beneficence is realized by vaccination, which should be extended to the thousands of unprotected persons now living upon this coast, and the other thousands who are ever liable to the disease by reason of the prophylactic power of vaccination having become exhausted in their systems through age.

The question of compulsory vaccination, except in time of epidemics, is one that has lately been given great prominence by the epidemic in Montreal. It has been estimated that the money value of the business lost by reason of that epidemic was many millions, and when business values are brought into competition with disease then you will find that business will compel disease to keep in the background if it can be done by so simple a proceeding as vaccination. The policy of compulsory vaccination is open to question, for the reason that the human mind revolts against what it considers an aggression upon personal liberty, and consequently such a law would inevitably raise a host of objectors, or anti-vaccinationists, as it did in England when compulsion was tried. We do not desire to raise any such antagonism here, and therefore will be content for the present if our Legislature will pass a bill making it compulsory on every child, before entering any public school in the State, to be vaccinated. This, in time, will vaccinate the next generation of Californians, and diminish the supply of material which otherwise would surely exist. The passage of such a law would not be compulsory upon those who preferred that their children should not receive the benefits of protection, as they could send them to private schools; but certainly we have no right to permit any person partaking of public benefits to imperil the lives of others by his ignorance, perversity, or captious stupidity.

In Canada, vaccination is compulsory on all, and any Health Officer can demand the exhibition of the certificate of vaccination, and has the right to examine every person to ascertain that the same has taken place; and further, any person coming from a locality where smallpox exists, must not only produce a certificate of vaccination, but also a certificate that he or she has not been exposed to the contagion within fifteen days preceding; failing which, it shall be the right of the Health Officer to forbid such person to enter or depart, as the case may be.

In Rhode Island, "no person shall be permitted to attend any public school in the State as a pupil unless such person shall furnish to the teacher of such school a certificate of some practicing physician that such person has been properly vaccinated, as a protection from smallpox, and every teacher shall keep a record of the names of such pupils in their respective schools as have presented such certificate. Every person violating any provision of this chapter shall be fined not exceeding fifty dollars, or be imprisoned not exceeding thirty days, unless otherwise herein provided."

In Connecticut, "Boards of Health may adopt such measures for the general vaccination of their respective towns as they shall deem proper and necessary to prevent the introduction or arrest the progress of smallpox. Every person who shall refuse to be vaccinated, or prevent any person under his care or control from being vaccinated, on application being made by *any member* of the Board of Health, or by a physician employed by the Board of Health for that purpose, unless in the opinion of another physician it would not be prudent on account of sickness, shall forfeit five dollars to the town where the offense was committed. Every person who shall violate any provision of the preceding sections of this chapter, or legal order of the Board of Health, for which no other penalty is provided, shall be fined not exceeding five hundred dollars, or imprisoned not exceeding six months, or both."

In Massachusetts, parents and guardians shall cause their children and wards to be vaccinated before they are two years of age, under a penalty of five dollars for every year's neglect. The Selectmen, Mayor, and Aldermen, shall require and enforce the vaccination of all the inhabitants when in their opinion the public health requires it, and the revaccination of all the inhabitants who do not prove to their satisfaction that they have been successfully vaccinated or revaccinated within five years, under a penalty of five dollars.

In New Jersey, School Trustees may prohibit the attendance of any unvaccinated child who has not had the smallpox, and shall decide how far revaccination shall be required if a case or cases of smallpox have occurred in the city or district.

Illinois has decreed that no pupil shall be admitted into any of the public schools of that State without presenting satisfactory evidence of proper and successful vaccination.

I cite these examples from other States to show that this Board is not asking any unreasonable legislation upon this most important subject, but simply following what experience has demonstrated as a feasible way of protecting the rising generation from a disease otherwise almost unavoidable if once it appears in a community. As is well said by Professor Brewer in the last report of the Connecticut State Board of Health, in speaking of public vaccination:

> Abundant experience shows that there are enough persons in every community who neglect vaccination for themselves or their families at their private expense, to leave a large enough number of unprotected people to have material for an epidemic of smallpox if it once gets well started. And as vaccination is the only means yet devised to practically prevent occasional epidemics, and the consequent destruction of property or loss of business, therefore it is lifted into the category of public works for the public's good. It is something belonging to the community to do for its own protection, as much as would be the building of a dike or dam to protect the property of all the citizens in common from some common danger. As to the rights of compulsory vaccination, I have no doubts whatever, and such right will exist so long as a community has the right to protect itself from any enemy.

Fortified by expressions such as these and indorsed by the experience of those States and countries where universal vaccination is the rule, we confidently rely upon our coming Legislature to give us such protection to our State from the ravages of smallpox as can be insured by vaccination, at least, of our public school children. The effect of this law would be to eliminate, in time, those senseless objectors who now render universal vaccination impossible, and produce, in their stead, a race of individuals who, having in their own persons experienced the beneficent protection cast over their lives by this God-given gift, would be only too willing to confer the same immunity from a loathsome disease upon their children.

QUARANTINE.

The subject of quarantine has engaged the attention of this Board for many years, but so far without any palpable result. This session of the National Congress we presented a bill for protecting the State of California from the invasion of infectious and contagious disease, by establishing a quarantine station in San Francisco Bay. This was forwarded to our representatives, and received their unanimous indorsement and promise of assistance in procuring its passage. So far, it has been referred to the committee, where it remains until reported back. The probabilities are that no action will be taken on it this session. We are, therefore, practically defenseless, in a measure, against the importation of infectious disease. The duty of Congress in this matter is admirably defined by Dr. John H. Rauch, Secretary of State Board of Health of Illinois, in his address upon "State Medicine," before the American Medical Association, at its meeting in May, 1886. He says:

> One thing remains clear. Whether by the rehabilitation of the National Board, or by the creation of a new organization, it is the imperative duty of Congress to complete the health defenses of the country. Municipalities have their legitimate sphere, within which they alone can act and are responsible, and next beyond which the authority and resources of the State are demanded. But neither municipalities or States can protect themselves against foreign pestilences without the assistance of the National authority, nor can they properly guard themselves against interstate infection or contagion without the coöperation of the same authority.

In speaking of his tour of inspection of the quarantine maintained upon the Atlantic and Gulf Coasts, from the St. Lawrence to the Rio Grande, he says:

> I am more than ever convinced since completing this inspection that Asiatic cholera, as well as smallpox and yellow fever, may be effectually excluded from the United States by an intelligent use of the agencies still at our command. This is not a matter of speculation or theory. A great advance has been made in practical sanitary science since 1878, notably in the administration of the maritime quarantine generally, and especially in the improved safeguards at the mouths of the St. Lawrence and the Mississippi. A quarantine of exclusion of the three principal epidemic diseases is now a matter of certainty, dependent upon prompt notification of threatened danger; vigilant supervision over commercial intercourse with infected localities; inspection of all immigrants and the enforcement of their vaccinal protection; sanitation and purification of infected vessels and cargoes; isolation of those sick with these diseases; the surveillance of suspects during the period of incubation; and the employment of other well defined preventive and precautionary measures, which now constitute the best modern sanitary practice as applied to maritime quarantine. It must be repeated, however, that the coöperation of the National Government with State and local authorities, as well as its independent action in matters beyond the reach of States and municipalities, are indispensable to the proper protection of the public health. The duty of Congress in this connection is even more pressing than the responsibility of providing defense against an armed enemy. The latter is a more or less remote contingency, but the assaults of foreign pestilence are constant and continuous.

This quotation from Dr. Rauch's admirable address gives his impressions after a visit along the eastern coasts where quarantine is vigorously enforced. Had he visited the Pacific Coast and seen how inadequate are our resources to deal with an invading enemy, his language would have been still more vigorous, and if possible more emphatic. If Congress fails this session to pass our quarantine bill, our only resource will be another appeal to our Legislature to appropriate a contingent fund to meet any emergency that may arise to threaten the health and lives of our fellow citizens by land as well as by sea. In truth, there should be at all times at the disposal of the Governor a contingent fund which could be used at the request of the State Board of Health in times of threatened danger upon our borders; and it would be an act that would meet the approval of every thoughtful citizen upon this coast, if the Legislature at its coming session would appropriate a sufficient sum to defray all the necessary expenses incidental to placing a quarantine upon those borders of our State which are threatened by the invasion of contagious or infectious diseases. Yellow fever, smallpox, and cholera can be prevented from entering California by a proper quarantine; and the amount of money spent in prevention would be but the merest pittance compared with the monetary loss, to say nothing of human life, which would accrue to the State by the entrance into it of any one of those diseases. It is incomprehensible how legislators can be so blind to the interests of California as to refuse this safeguard upon which depends the commercial prosperity and the individual security of its people.

MORTUARY STATISTICS.

As heretofore mentioned in the preceding pages of this report, the very unsatisfactory and defective plan at present existing for carrying out the registration laws, prevents my presenting to your Board the mortuary statistics of the State in any one sense complete. Our registration laws must be amended before we will be enabled to apply them with any degree of success to accomplish the design for which they were enacted. For the statistics which are here presented, I am indebted to the untiring kindness, courtesy, and in many cases self-sacrifice of the members of the medical profession throughout the State, whose names it has given me great pleasure to record in another part of this report as exemplifying the fact, that the character for philanthropy which distinguishes the medical profession from all others, is not wanting in those of California. From the imperfect reports collected from June 30 to December 31, 1884, we find that there were recorded three thousand two hundred and eighty-one deaths, inclusive of one hundred and forty-one still-births. During this six months there were four hundred and ninety-two deaths from zymotic disease. Of these, one hundred and eighteen were children under one year of age, and one hundred and thirty-nine under ten years of age, which shows that of all the deaths from preventable disease very nearly one half were in children under ten years of age. *Typhoid fever*, during the six months, is credited with the highest mortality among the zymotic type of diseases, being one hundred and one; seventeen being under ten years of age. *Cholera infantum* stands next in the list of decedents, having a record of eighty-one deaths. Of these sixty-five were under one year of age, and sixteen under five years. *Diphtheria* is credited with sixty-six deaths, forty-eight of which were under ten years of age, and fourteen under twenty years, leaving but four decedents over that age; three of these were under thirty years of age, and one under forty years, exemplifying in a striking manner the infrequency of death from this disease in adult life. *Croup* caused twenty-eight deaths, all under twenty years of age. *Diarrhœa* and *Dysentery* are recorded as fatal in fifty-eight instances. *Scarlet fever* caused seventeen deaths. *Measles* had only six deaths, and *Smallpox* caused the death of one.

Among the *constitutional diseases* we find *Consumption* exceeding all other causes of death, numbering for the six months four hundred and eighty-one, which is about the general average for several years past. *Marasmus*, closely allied, if not identical with tubercular disease elsewhere, caused one hundred and one deaths, ninety-two of which were under one year of age. *Meningitis*, another ally of the same diathesis, is credited with producing seventy-eight deaths, fifty-five of which were under five years of age. *Cancer*—To this disease ninety deaths were attributed during the six months, representing but few localities. The local diseases swell the mortality list even more than the zymotic, nine hundred and forty-five deaths being the result of local disease. *Pneumonia* heads the list with one hundred and sixty-six deaths. *Bronchitis* had sixty decedents, and other diseases of the respiratory organs sixty-seven deaths. Diseases of the alimentary canal, including *peritonitis*, number two hundred and one. *Nephritis*, including *Bright's disease*, caused seventy-one deaths, and *Heart disease*, including *Aneurism*, two hundred and ten.

As this retrospect of the mortality of the latter half of eighteen hundred and eighty-four is, from the number of missing reports, rendered useless for comparison with the six months preceding it, it will suffice to say that of the thirty-two hundred and eighty-one deaths recorded, seven hundred and sixty-five occurred in children under five years of age, a percentage of 2.33 per thousand, which when compared with the death rate in other States is not an excessive percentage. From what we can gather from the scattered reports of 1884, the condition of the State was one not marked by any special epidemic, or unwonted increase in the record of zymotic disease. At this time the number of correspondents was very limited, and did not fairly represent the whole State; but what reports were received indicated that the condition of the public health during this period was quite favorable. In the succeeding six months of the fiscal year, from January 1 to June 30, 1885, the number of correspondents had been increased very materially, and consequently the returns of deaths were likewise augmented. We find that for the last half of the fiscal year four thousand nine hundred and fifty-seven deaths have been recorded. Of these, one hundred and fifty-three were still-births, and nine hundred and nineteen the result of zymotic disease, or at the rate of a fraction over 18 per cent of the total mortality, which is a slight tribute to the effect produced by the increased cleanliness which may be claimed as a result of the repeated warnings of your Board to prepare for an invasion of the cholera which was then expected. Of these deaths one hundred and sixty-three were infants under one year of age, two hundred and forty-one were under five years, one hundred and twenty-seven under ten years, and fifty-four under twenty years of age; or, in other words, five hundred and eighty-five of these deaths from preventable disease were under twenty years of age.

Of these victims to sanitary ignorance or neglect, seventy-two were carried off by *Cholera infantum*, the greatest mortality being in the Summer months, when the weather was exceedingly warm. Forty-eight deaths of infants were ascribed to *Diarrhœa* and *Dysentery* during the same period. Seventy-eight deaths occurred from *Measles*, which is a large increase from the previous six months. We must, however, remember that this report embraces a very much larger area than that of the previous six months, and also that portion of the year during which this exanthem was most extensively prevalent. *Scarlet fever* likewise exhibits an increased death rate from like causes, the mortality being forty-three. It did not prevail, however, as extensively as measles, and its type was mild.

Of *Smallpox* there was not a single case in the State during the time herein embraced. *Diphtheria* shows the very much increased mortality of one hundred and thirty-three over the previous six months, which was only sixty-six. This increase of deaths is partly owing to the larger extent of country heard from, and partly to the increased spread of the disease. The diffusion of sanitary knowledge by your Board, and the increased vigilance of our correspondents in isolating the cases that come under their care, and teaching their patrons the necessity of perfect cleanliness of person and surroundings, have done much to limit the disease in many localities. With increased powers, more undoubtedly could be done to arrest its spread, but without judicial authority advice is all that can be offered at the present time. The semi-annual mortality from *Croup*, which is now regarded by very many competent authorities to be diphtheritic in its nature, is also largely increased, being one hundred and eight, or eighty-one less than that from diphtheria. A curious and suggestive fact has been noticed by the writer, which may add some weight to the opinion expressed by those who believe in the identity of membranous croup with diphtheria, that whenever a report was received announcing a death from membranous croup, in the card mentioning the "prevailing diseases," diphtheria was almost invariably one of them. *Whooping-cough* seems to have caused twenty deaths, which may perhaps be accounted for by the prevalence of measles, as the infection of the one is often not perceived until the rash has passed away, leaving the infant or child in such a debilitated condition as to be unable to resist the exhausting effect of the prolonged and suffocating cough. This theory is somewhat supported by the fact that but six deaths occurred from measles during the previous six months, and only three deaths from whooping-cough. *Enteric*, or *Typhoid fever* caused the death of one hundred and twenty-one persons, being sixty-eight times less fatal than diphtheria during the six months. This is rather an alarming fact, when we consider the frequency of typhoid fever compared with diphtheria, and shows how much more to be dreaded is an epidemic of diphtheria than that of typhoid fever. Our reports, however, show that whereas diphtheria is more fatal between the ages of one and fifteen years, typhoid fever causes its maximum of deaths between fifteen and forty years of age.

The subject affords the sanitarian an extensive field for investigation, as each case is a study in itself, and requires careful examination to solve the problem of causation. *Typho-malarial fever*, for which some authors claim a special entity, had a fatality of three, which is but a nominal death rate for so serious a disease. *Remittent* and *Intermittent fevers* are credited with thirty-six deaths, which is a slight increase over the preceding six months, if the localities heard from were equal in number, which they are not, and therefore no deduction as to relative mortality can be safely drawn; the same observation will apply to *Cerebro-spinal fever*. Among the forty-one cases recorded of this disease for the six months, eleven were infants under one year of age, and of the thirty-two recorded the previous six months, thirteen were under the same age. We may be fairly permitted under these circumstances to express a doubt of the accuracy of the diagnosis in these cases. Cerebro-spinal fever being in the experience of the writer rather a rare disease in infancy, although it is not by any means unknown to occur even on this coast among infants, yet three and one half per cent of all the cases registered seems too large a percentage of deaths at this age to render the diagnosis as probably correct. This is one of the great drawbacks to statistics of this kind, as we have no means of knowing positively, or even probably, whether the recorded cause of death is reasonably true. For instance, not long since I was called in consultation by a physician to see what he called a case of cerebro-spinal fever in an infant eight or nine months old. To my surprise I found a case of well marked nasal and pharyngeal diphtheria. The nares were so obstructed by the diphtheritic deposit that the infant had to keep its head well thrown back in order to breathe, hence the diagnosis of cerebro-spinal fever, which had no existence. Many errors like this are recorded, and I suppose will ever be inseparable from statistics until medical education is more uniform, and the practice of medicine more scientific and less empirical. Of *Meningitis*, tubercular, and otherwise, among the constitutional diseases, there are recorded one hundred and thirty-six deaths, and of hydrocephalus, twenty-one. In the preceding six months the deaths from meningitis were seventy-eight, which would indicate that the heat of Summer and Fall was less productive of this inflammatory condition of the brain than the cold of Winter and the variability of Spring, if meteorological conditions can be admitted into the chain of causation which environs this disease. Among the diseases affecting the respiratory system, *Consumption* was the cause of the greatest mortality, some seven hundred and forty-six deaths from this disease being recorded, or two hundred and sixty-five more than the preceding six months. The large mortality from consumption is accounted for by the continuous stream of sufferers from this affection that is constantly pouring into the State with the fond hope of at least relief, if not cure. Of these seven hundred and forty-six decedents, only one hundred and forty-eight were born in the Pacific States, many of them coming from Oregon, Washington Territory, British Columbia, and other northern countries, to seek the genial climate of California, and strangely confident of relief even in the last stages of the dread malady. Among the local diseases *Pneumonia* heads the list with three hundred and eighty-six decedents, which is double the number of those recorded for the preceding half year. The Winter and Spring months here, as elsewhere, show the greater mortality from this disease. If, as Professor D.

Draper, of New York, surmises, there is a connection between climatic conditions and the death rate from pneumonia, and that the mortality varies with the amount of ozone in the atmosphere, being greatest with an excess of ozone at a low temperature, and least when ozone was smallest in quantity, it would be a study of much interest to either corroborate or deny these assertions by a daily record of the meteorological conditions of the atmosphere upon this point, and compare the results with the death rate from pneumonia. Bronchitis, likewise, by strange coincidence, shows twice as many deaths during the same period, but whether this was owing to the same cause or climatic conditions cannot be definitely ascertained. Bronchitis prevailed quite extensively during the Winter of 1884-85, as did also influenza. As this review includes only the very imperfect returns of the Fall of 1884, and the more numerous reports of the first half of 1885, we may perhaps be able to present you in the synopsis of the fiscal year ending June 30, 1886, with a more extended report of the mortality occurring in the State during that period, as the districts heard from will embrace a larger area of country than heretofore, having now established correspondents in every county in the State, including some hundred localities which are heard from every month. This area contains an estimated population of over half a million of inhabitants, and may be taken as a fair index of the general condition of the public health for the period named.

REVIEW OF 1885 AND 1886.

The mortality for the fiscal year ending June 30, 1886, shows a material increase over that of the previous year, which is explained by the increased sources of information from which we derive the fact, and therefore cannot be fairly attributed to an increased death rate over previous years. The number of deaths recorded for the fiscal year ending June 30, 1886, aggregate nine thousand seven hundred and fifty, inclusive of two hundred and sixty-six still-births. As this aggregate of mortality represents only that occurring among a little over one half the population of the State, inclusive of the larger cities, we perhaps would not err very much in estimating the deaths not recorded as eight thousand; or, in other words, we may fairly be justified in placing the death rate of the entire State at eighteen per thousand. If our means of obtaining a record of all the deaths that occur in the State were such that a correct list would be possible, we would most probably find that the death rate did not exceed fifteen per thousand, as the places unrecorded now are small towns, villages, and scattered hamlets, where the death rate is very low indeed. The past year was not marked by any epidemic disease within the State. On the contrary, the public health, as judged by the various reports received, was above the average. We may, I think, justly attribute this immunity from disease to the general precautions taken throughout the State to be prepared for the invasion of cholera. This necessitated a general sanitary inspection, which, added to the potency of fear, gave an impetus and generalization to the work which has demonstrated so satisfactorily its value. Happily cholera did not make its appearance this Summer, but the work done in its anticipation has, it is sincerely hoped, taught the people of California a more eloquent lesson upon the necessity and priceless value of perfect cleanliness than any amount of mere book reading upon the subject of sanitation. They can see for themselves the fact demonstrated how sanitary measures have preserved the health of their cities and towns, and saved hundreds of lives that otherwise would have been needlessly sacrificed upon the altar of uncleanliness.

In reviewing the causes of mortality, we find that consumption causes three times more deaths than any other disease upon the coast. This apparent tendency to death from lung disease, tubercular in nature, in California, is not attributable to the climate or the environment of its people, as there are no people that have the blessings of a more diversified climate than ours, and no people who are better fed, better clothed, and better housed than the generality of Californians. Our mortality from consumption arises not from intrinsic causes, but extrinsic. We are here the recipients of thousands of tubercular men and women who seek these shores in hope of delaying the progress of this fell disease, and of whom a large number, who come early in the disease, succeed; others come here to die, as no climate is possible to restore to these sufferers their health. This class is the most numerous, and they are found in the southern counties in hundreds; hence the great mortality from consumption noted in Los Angeles, San Bernardino, and other southern towns which have become famous as health resorts. Consumptives congregate there, attracted by the salubrious climate and the balmy air of these famed spots on earth: death, nevertheless, follows them, and they swell our bills of mortality month after month. The large death rate from this disease merely shows then the number of those so afflicted who visit our coast in the vain hope of recovery, and must not be taken as an index of our climate as a predisposing factor in the etiology of the disease.

PNEUMONIA,

Or inflammatory disease of the lungs, caused a little less than one third of the deaths attributed to consumption; yet the mortality was much greater than any other local disease affecting the human system, the deaths being six hundred and four, a percentage of 6.2 of all the deaths recorded. Pneumonia has not been epidemic anywhere on the coast, but prevailed quite extensively in San Francisco during the Winter and early Spring months. The disease is noticed as more likely to develop upon the seacoast and the higher altitudes, where the temperature is lower and the moisture more permanent, than in the warmer interior valleys, where extreme vicissitudes of temperature are rare. The cases are all sporadic, and what is known as infectious pneumonia is rarely seen.

BRONCHITIS.

The deaths attributed to this disease during the past year have been one hundred and ninety-four, of which number seventy-four were children under five years of age. The months showing the highest death rates were December, 1885, and January, 1886, when they reached twenty-two in each month, respectively. The lowest death record was in June, 1886, when the number of decedents was six. Bronchitis, like pneumonia, is much more prevalent along the seacoasts, and especially those parts where cold and damp fogs are frequent, than it is in the warmer valleys, or even in the higher altitudes. When the snow line is reached we find that from it upwards the tendency to bronchitic affections increases in Winter and decreases in Summer, which indicates that the relations which bronchitis bears to meteorological conditions are well marked, and that the range of temperature, the humidity of the atmosphere, and the presence or absence of fogs and cold winds, influence in a striking manner the advent of the disease.

DIPHTHERIA.

This formidable disease, which seems to keep pace with the footsteps of civilization and take up its abode wherever a civilized society exists, has not spared California for the past year, having made a record of three hundred and seventy-four deaths. If we add to these those not recorded, but which undoubtedly took place, we are startled at the mortality caused by this preventable disease. No less than three hundred and thirty-two of these recorded victims to unsanitary surroundings were under twenty years of age—some in infancy and some just dawning into manhood and womanhood. The previous year the deaths were two hundred and sixty-five, with two hundred and forty-eight under twenty years of age. The greatest number of deaths occurred in San Francisco, where the disease prevailed more or less during the entire year. There were sporadic cases here and there throughout the State, which were for the most part imported from other places. Meteorological conditions seem to have but little influence in determining the accession or recession of the disease, as we find exactly as many deaths recorded in July as we do in January. The smallest number took place in June, numbering eighteen, the next smallest number, nineteen, being recorded in March: in April the deaths were twenty-six, and in May thirty-one. In the warm and dry months of Summer the average death rate was one hundred and eighty-eight, and in the rainy, cold, and damp months of Winter the deaths numbered one hundred and eighty-six, showing an increase of two in favor of Summer. In croup the same comparison does not hold good, as we find in this disease that sixty deaths took place during the Summer months and one hundred and six during the Winter, but as this table includes those children who die of spasmodic croup as well as membranous croup, we might expect an increase of deaths in Winter, when bronchial diseases are so prevalent and spasmodic croup so frequent.

SCARLET FEVER.

The fatality of scarlet fever for the past year has been extremely limited, sixty-five deaths only being recorded in a population averaging over half a million. The greatest mortality in any one month was in December, when fourteen deaths were recorded; the next highest being January, which had eleven deaths. According to our tabular list this disease seems to have been more fatal during the Winter months than in the heat of Summer, as we find but seven deaths in May, three in June, none in July, one in August, and two in September; in October it rises to six, November six, and December fourteen. The disease, wherever it has occurred, according to the reports of our correspondents, has been of a mild type, with none of that virulence which has sometimes been witnessed in California during past epidemics. The carelessness with which those sick of the disease have been allowed to mingle with the well has been a fruitful source of spreading the disease; and when we recollect how long the germs of scarlet fever will lie dormant and yet continue in potential life, we are not surprised to see the disease appearing year after year in those places where sanitary measures for its eradication are neglected.

Among the curious discoveries of the past year in relation to the causation of scarlet fever is that of Dr. Klein and Mr. W. H. Power, of London, the latter being one of the Health Inspectors in the service of the local Government Board. The story is thus told in the *Medical Press:*

> Towards the end of 1885 an epidemic of scarlet fever occurred in certain districts in northwest London, and a very carefully conducted inquiry led to the discovery that all the sufferers derived their milk supply from a particular farm, situated at Hendon; but it could not be ascertained that any case of the disease had existed anywhere near this particular farm at a date sufficiently recent to admit of its being admitted as the contaminating source of the outbreak following the use of the suspected milk. Additional and irrefragable proof that it was this fluid, and this alone, which was answerable for the epidemic, was afforded by the fact that on a certain occasion a quantity of the milk was returned to the farm by the retail dealer to whom it had been distributed, with a view to its being thrown away as dangerous. A number of poor people hearing of the contemplated waste, as they considered it, then obtained surreptitious possession of the condemned material, which they proceeded to consume, and in due course many of the children to whom it had been given became the subjects of scarlet fever. This remarkable incident in the chain of events naturally excited the experts engaged in the investigation to still keener efforts in tracing the original source of the disease, and their attention was irresistibly attracted to the cows from which the milk producing such serious effects had been obtained. The result of their examination was the discovery that four of the animals were found to be suffering from a superficial ulceration of the udders and the hairy parts adjoining, the nature of the eruption being, however, so trivial as to have aroused no suspicion concerning it on the minds of the usual attendants. Inquiry and observation next established the fact that this eruption was communicable to perfectly healthy cows by contagion; and also, that only the milk yielded by animals affected with it was capable of producing the symptoms of scarlet fever among consumers of their milk. Two of the cows in question were purchased and removed to the Brown Institution, where Dr. Klein conducted a long series of experiments designed to test the properties of the secretion poured out by the ulcerations mentioned above, the result being one of those startling and epoch-making discoveries with which the student of modern medicine has been made familiar. Dr. Klein's experiments have shown that the virus (styling the *materies morbi* so for the moment) obtained from the cutaneous sores is capable of cultivation, after the method now so familiar to pathologists, and that the most favorable medium for its rapid development is milk; also, that it may be successfully inoculated on calves, and that after infection these exhibit the peculiar morbid changes in the kidneys which constitute the essential pathological phenomena of scarlet fever in the human organism. Further, it was demonstrated during the course of the experiments, that the character of the disease induced by direct contagion was of much less severity than that inoculated by the cultivated virus. * * * For the first time in the history of preventive medicine we are enabled to entertain, without a suspicion of extravagance, the hope that by most simple and easily applied measures the risk of spreading a malady that is accountable for one death out of every thirty that are registered, may be entirely obviated, and that humanity will be in future relieved from a scourge that reacts with such distressing severity, especially upon the lives of the young.

I am constrained to quote this extract at length, it contains matter of such vital importance to the sanitarian. How many mysterious visitations of scarlet fever, which hitherto have baffled the strictest scrutiny and eluded the most searching inquiry might have been quickly discovered and traced to their original source in the light which has been shed upon this disease by the discovery of Mr. W. H. Power and Dr. Klein! If further investigation confirms the experiments of Dr. Klein, and the cause of scarlet fever be relegated to a source so obvious to the most inexperienced observer, then indeed may preventive medicine claim one of the greatest victories ever recorded in the history of medicine.

MEASLES.

Although measles has prevailed in a great many places in the State during the past year, nowhere did it attain the proportions of a dangerous epidemic. The highest mortality for any one month was in July, when the deaths from this cause reached ten; in August four, September three, October and November one each, and December none. The total deaths throughout the year attributed to measles were thirty-one. We are therefore justified in believing that the form of the disease was devoid of malignancy, and presented no features worthy of further note at present.

WHOOPING-COUGH.

This epidemic disease, which has elicited so much controversy in medical circles as to its nature and cause, prevailed in many places during the year, and was the occasion of the death of forty-seven persons, of whom one was over ten years of age, and one under twenty, the others dying in infancy. The relation which whooping-cough bears to measles has not yet been authoritatively defined, but some practitioners, as Gérmain See and Gueneau de Mussy believe in the very closest relations between these diseases. We have observed that wherever measles prevailed the report was soon followed by that of whooping-cough, but as epidemic catarrh was also prevalent, the cough might, as Dr. West thinks, be evolved out of it and not out of the measles. If the parasitic nature of the disease be fully attested, it will mark another era in preventive medicine, as it will fall under those classes where isolation, with disinfection, is sufficient to stamp out the disease; or indeed it may be possible to cure it by the inhalation of some parasiticide, which, while not injuring the system, may be sufficiently powerful to destroy the spores without irritating the tissues.

TYPHOID FEVER.

Of the zymotic diseases diphtheria caused the greatest destruction to life, and typhoid fever stands next in rank. Two hundred and fifty-seven deaths are ascribed to this disease, if we include in the estimate thirty-two cases of so called typho-malarial fever, which late authorities are willing to concede is neither more nor less than typhoid fever complicated with malarial saturation. Typhoid fever has not presented any epidemic tendency during the year, and the number of those sick from the disease has been rather below the average. The highest number of deaths in any one month took place in October, when thirty-eight deaths were registered. Of these thirteen occurred in San Francisco, the remaining twenty-five being scattered here and there over the State. We find that one hundred and thirty-one deaths occurred during the Summer and Fall months, and only ninety-four during the Winter and Spring months. The same coincidence is observed in the thirty-two cases of typho-malarial, eleven deaths taking place in Winter and twenty-two during the Summer, which, in a manner, tends to confirm the opinion of Max V. Pettenhoffer, that the prevalence of typhoid fever coincides with the rise or fall of the ground water, increasing as the water falls, and decreasing as it rises. Dr. Henry Baker, Secretary of the State Board of Health of Michigan, has observed the same coincidence; and the comparison of the meteorological and other conditions led him to conclude that no circumstances known to him varied in such a manner as to explain the unusual prevalence of typhoid fever in certain months, except the condition of the ground water as indicated by its lowness in wells. There hardly remains a doubt at the present time that drinking water is the source from which the great majority of attacks of typhoid fever arise. In Massachusetts, three hundred and ninety-three thousand cases of typhoid fever, with forty thousand deaths, have been traced to specific contamination of drinking water. The difficulty sanitarians have to meet in California, as elsewhere, is the sanitary ignorance of the people. You cannot persuade a farmer that his privy, situated ten, or twenty, or fifty feet from his well, could contaminate the water. He believes that the earth is a natural filter and cleanses from all impurities any fluid that might percolate through it into his well. If you tell him the story of the outbreak of fever in Lausanne, where the infected water filtered through nearly a mile of porous earth and then became the cause of an outbreak of typhoid fever, he simply laughs at your credulity, and continues to build his outhouses and his privy in the closest proximity to his dwelling. There is no remedy for this except education and the constant teaching of sanitary science in popular form. When people begin to realize that *clear* water is not always *pure* water, and that water in wells that are situated near the kitchen and outhouses are sure to be contaminated by the slops from the kitchen and the sewage from the outhouses, and that the lower the water gets in the well the more unwholesome it becomes, we may then look for a diminution of typhoid fever, both in the numbers of those attacked and in the fatality of the disease.

REMITTENT AND INTERMITTENT FEVERS.

The fatality from these diseases reached the number of forty-seven, the great majority being from remittent, or so called bilious fever. The highest death rate in any month being six, the mortality can truthfully be adjudged as small when we consider the number of persons that yearly suffer from paludal fevers. It has been noticed that malarial fevers have increased in those sections of country where irrigation has been inaugurated to increase the fertility of the soil. Pernicious fevers are, however, rare in California, and very seldom, indeed, is the algid form witnessed. The ordinary forms of paludal fevers yield readily to quinine, and those living in regions where they prevail seldom call a physician to their aid, being content to take their quinine with their coffee as a morning beverage.

DIARRHŒA AND DYSENTERY

Have prevailed to a greater or lesser extent throughout the year, but not in what might be termed an epidemic form; they are credited with causing one hundred and sixteen deaths, the largest number in any one month being thirteen from diarrhœa in October, and eight from dysentery in September—the average being a trifle over six a month from diarrhœa, and a little over three a month from dysentery. During the Summer months, diarrhœa was especially prevalent; the type was exceedingly mild and easily controlled by simple remedies. The same may be said of dysentery, which in no section of the State showed an epidemic tendency.

CHOLERA INFANTUM.

Deaths from this disease reached one hundred and sixty-nine during the year, and was particularly fatal during the Summer months, reaching as high as thirty-one in June and August, and thirty in October. The high temperature during these months, the abundance of fruit, the tendency that the milk of cows fed on green alfalfa has to give diarrhœa to infants, may be held responsible for this mortality, and if, as held by V. C. Vaughan, M.D., Ph.D., Professor of Chemistry in Michigan University, that tyrotoxicon may be produced by certain changes taking place in milk, and this product is poisonous, there is no reason to doubt that many of these rapidly fatal cases may be caused by this ptomaine. Indeed, I find that in the proceedings of the Michigan State Board of Health for July, 1886, Professor Vaughan calls attention himself to this fact. He says, in speaking of cholera infantum:

> We shall find its similarity to poisoning by tyrotoxicon very marked. The suddenness and violence of the attack, the nausea and vomiting without marked tenderness of the abdomen, the character of the stools, the great thirst, the severe pain in the back of the head, the nervous prostration, and the tendency to deep sleep, are all observed in both. Again, the white, soggy appearance of the mucous membrane of the stomach of the cat corresponds exactly with observations upon children after death from cholera infantum. Cholera infantum, as stated by Smith, is a disease of the Summer months, and, with exceptional cases, of the cities. Thus, the disease occurs at a time when decomposition of milk takes place most readily. It occurs at places where absolutely fresh milk often cannot be obtained. It is most prevalent among classes of people whose surroundings are most favorable to fermentative changes. It is most certainly fatal at an age when there is the greatest dependence upon milk as a food, and when, on account of the rapid development of intestinal follicles, there is the greatest susceptibility to the action of an irritant poison, and when irritative and nervous forces are most easily induced. If all these facts be taken into consideration, along with the experiments detailed and which show the readiness with which the poison can be generated, it will certainly seem at least palpable to any one that tyrotoxicon may be a cause of cholera infantum.

The conclusions to which Prof. Vaughan's experiments with ice cream, cheese, etc., have led him, certainly bear the impress of truth. It is very certain that milk taken from a cow that is fed on green alfalfa will produce the most violent diarrhœa in some infants, and it is no less certain that milk that has undergone or is undergoing putrefactive change, will almost invariably produce syptoms of cholera infantum. In the formation of tyrotoxicon we may have the solution, and if so, the remedy is apparent.

THERMIC FEVER OR SUNSTROKE.

There was one death recorded from sunstroke in June of this fiscal year. Some cases occurred subsequently, but cannot be further referred to in this report. In all the cases of sunstroke reported by this Board, now numbering ten since 1870, we find that all occurred in the months of June or July, which mark, probably, the warmest months in the year. The influences upon which we have hitherto relied as affording protection from sunstroke, dryness of atmosphere and coolness of evenings, seem to be powerless in the presence of great heat acting upon individuals who are unaccustomed to its influence. In the case mentioned in this report, the decedent was a man just arrived in California from a cold climate. Incautiously he went to work at once in the hot sun. On the second day he was stricken down unconscious, and died in a few hours. The majority of deaths from heat apoplexy occur in men of intemperate habits, whose blood is in a condition to rapidly absorb heat and repress elimination. Nevertheless, sunstroke is a comparatively rare occurrence in California, as the reports of the Board of Health for the past fifteen years show conclusively, and would probably never occur if those whose duty compels them to labor under the influence of the sun's rays would use ordinary precautions in pursuing their labor. It might, perhaps, be well for the State Board of Health to issue a circular upon this subject before another Summer comes, as the densest ignorance seems to prevail among newcomers upon the danger to be apprehended from insolation, and the means to be used for restoration in case of attack.

Before closing this report, we must not fail to call attention to the obligations we are under to

OUR CORRESPONDENTS.

The number of gentlemen to whom we are indebted for much of the information contained in this report has been greater the past year than ever before known in the history of this Board. This, in itself, is a gratifying instance of the progress of sanitary science, and assures us of the interest taken in the work of the Board. To these colaborers with us we owe the knowledge that we possess of the various diseases that have prevailed from month to month throughout the State; and, deprived of their generous aid, the efforts of this Board to extend the knowledge of sound sanitary principles among the people would have proven a comparative failure. By no other means, as the law now stands, was it possible to obtain, from time to time, the information of which we stand in need concerning the sanitary conditions prevailing in different parts of the State; and to these same gentlemen, likewise, is due the credit for whatever mortuary statistics we have been able to collect. When we recall the fact that all this varied and essential information is contributed voluntarily and, in many instances, at considerable trouble and inconvenience to the contributors, without fee or reward other than that pertaining to the consciousness of adding to the sum of human happiness and the well-being of their fellow men, we cannot but be impressed with reverence for a profession that can furnish such instances of purely unselfish philanthropy, that inures not to its own pecuniary benefit, but exactly the reverse, in order that man may be made happier and his life prolonged in health, during his transit through life's wilderness.

To those gentlemen who have favored us we desire to return our personal thanks and the thanks of the State Board of Health, and trust their numbers will keep increasing until every town and village, as well as city, in the State will be in direct communication with this Board, through its medical correspondent. To those gentlemen who have contributed so liberally to the literature of the report the Board also desires to express its thanks. All of the reports will be found of great interest, and many of them of more than ordinary value in illustrating the topography and climatology of California. Our acknowledgments are especially due to the officers of the Signal Service for the very complete tables of the rainfall on the Pacific Coast, embracing many years, and also for the instructive tables of the rainfall for each month during the seasons of 1885 and 1886. These tables have not heretofore been published, and are a most valuable contribution to our work and the meteorology of the Pacific Coast. To Lieutenant W. A. Glassford, of the Signal Corps, U. S. A., in charge of the Pacific Coast Division, we are indebted for the preparation and the privilege of producing them in our report. To Sergeant James Barwick, U. S. Signal Corps, the efficient officer in charge of the Signal Office in this city, we are indebted for the review of the meteorological condition of Sacramento from January, 1885, to August, 1886, showing the temperature, rainfall, velocity of wind, etc., which will prove of great interest to those living in the Sacramento Valley, or those intending to locate there. He has also kindly furnished us with tables of the average annual and seasonal temperatures for the past thirty-three years, as well as the rainfall from September, 1849, to August 31, 1886.

We are glad to return to these officers the thanks of the Board for their valuable contributions, and to express our appreciation of the great services rendered to our people by the Signal Service Corps throughout the State.

Attention is likewise called to the exceedingly valuable paper contributed by Dr. Wolfred Nelson, on "Yellow Fever in its Relation to California." From Dr. Nelson's long experience in the midst of this disease in Panama and Mexico, anything from his pen upon this subject may be looked upon as thoroughly reliable, and the Board is under many obligations to him for this expression of opinion upon a theme of such vital importance to California.

Attention is also desired to the valuable essay of Dr. Sternberg, U. S. A., which, through the kindness of Dr. Irving A. Watson, Secretary of the State Board of Health of New Hampshire, we are enabled to reprint in our report.

To each and all of these valued contributors to sanitary science we again tender our warmest thanks for such efficient aid and hearty coöperation in our work, and trust it will mark the dawn of a new era in the sanitary history of California.

THE PRESS.

It is with great pleasure that the attention of the Board is called to the obligations under which it has been laid by the newspaper press throughout the State. Through this powerful lever of public opinion the State Board of Health has attained a prominence which, through any other channel, would have taken years to accomplish. Whenever it was deemed prudent by the Board to call public attention to any threatened epidemic or sanitary need, the press at once lent its ever efficient aid in giving publicity to our warning or advice. In the most courteous and generous manner it gives a large circulation to our "Monthly Circular," through which such an interest in sanitary matters is created that the public look for the circular, in order to obtain the most reliable information concerning the health of the State. Through these means public education in sanitary needs is being accomplished, and the State Board of Health obtaining a place in public estimation which will insure its future success. The study of general sanitation and domestic hygiene is receiving marked attention among the more intelligent portion of our people; indeed, a pleasant revolution is taking place upon these subjects. The work of the plumber has now been advanced into the domain of science, and we sincerely trust the day is forever past when our lives will be threatened within our very thresholds and round our domestic hearths by the ignorance or cupidity of unskillful workmen. The public, in these matters of domestic hygiene, is getting better and better informed daily, and the appointment, in every well ordered town, of Inspectors of Plumbing, to insure the proper performance of the work, places a safeguard about our homes which cannot be too highly commended. Much of this interest in sanitary appliances and the proper construction of our dwellings we owe to the press, and the earnest manner in which it has always endeavored to coöperate with our Board demands the unqualified thanks which we are now pleased to offer it.

CONCLUSION.

In concluding this report, as the executive officer of the Board I desire to acknowledge with thanks my personal obligations for the counsel and assistance that has been rendered me by every member of the Board. Our relations have been most pleasant and entirely harmonious in our mutual coöperation to advance the sanitary interest of the State; and if the Legislature in its wisdom will endow this Board of Health with sufficient legal power to preserve the State from the ravages of disease, and enable it to adopt the suggestions embodied in this report, we are convinced that the Board as now constituted is fully qualified to carry out successfully the provisions of the desired law, and place our commonwealth in an advanced position, not only in the conservation of life and the repelling of disease, but in all those appliances of modern sanitary science which are of benefit to the human family from the very beginning of life to its end, and thereby as a consequence lessening the tendency to sickness, disease, and death, and increasing the health, happiness, and material prosperity of our people. We believe our Board to be now in a position to fulfill all its promises if intrusted with the needful power to make its administration a success. We look to the patriotism and good sense of our lawgivers to see that the legal means shall not be denied, but that we shall have ample power to add to the grandeur of this favored State by increasing its public wealth in giving it public health.

Appended to this report is the account of the expenditure of the Board for the past two years, vouchers for which are on file in the Controller's office.

I likewise present the report of the State Analyst, with a general statement of the needs of the office and the work which he was enabled to do.

Appended to this report will also be found the names of our correspondents, which will illustrate the various regions of the State from which we derive our information.

The reports of the several hospitals are also presented, but not, we regret to say, in that complete form which should be characteristic of hospital statistics. Indeed, many of the county hospitals have failed to make any return, probably from the loose manner in which their affairs are managed.

The mortuary tables accompanying this report are prepared and tabulated from the returns received from our correspondents, and although they do not represent the total deaths of the State, they convey a fair idea of the causation and average death rate.

All of which is respectfully submitted.

GERRARD G. TYRRELL, M.D.,
Permanent Secretary California State Board of Health.

REPORT OF THE STATE ANALYST.

GENERAL STATEMENT.

The creation of the office of State Analyst by the Legislature at its last general session was an official recognition of a need already widely felt. The individual is powerless to protect himself against the adulterations and frauds which may be perpetrated in the manufacture and preparation of foods, wines, medicines, etc. It is a legitimate and well recognized function of the State to protect its citizens against such frauds and impositions. Thorough investigations in the interests of the public are needed to hold such impositions in check, as well as to furnish the necessary legal evidence for the conviction of the guilty.

The pressing necessity for such chemical examinations, although largely a matter of quite recent date, has been felt and recognized in all civilized countries. The municipal laboratory of Paris may serve as a well known illustration. It had its origin as an annex to the institution for the tasting and testing of wines, but in 1878 it was opened on the broader foundation of an institution for the investigation of suspected adulterations of foods, drugs, wines, etc. In 1881 a new laboratory building, specially constructed and equipped for its use, was opened to it. Its advantages are open to any one within the city, so that for a nominal expense any one can have suspected food, drugs, wine, etc., examined. State Analysts have been maintained for a number of years in the several districts of Great Britain. Similar provisions have also been made in Germany, Austria, and other countries on the continent of Europe. Many of the Eastern States have created the office of State Analyst or State Chemist, or made provision for carrying on investigations of suspected adulterations, etc.

The Act creating the office of State Analyst has a twofold object: 1, to protect the public against frauds and adulterations of foods, wines, drugs, etc.; 2, to give practical information in regard to certain resources of the State, and by implication to render all possible service in the material development of the commonwealth. Under this second head are specially mentioned the investigation of the mineral waters, medicinal plants, minerals, etc., of the State. The value to the State and the general public of a thorough and systematic analysis of the mineral waters within the boundaries of the State cannot well be overestimated. The physicians of the State individually and in their various societies, county and State, ask for it most urgently. This request—and I had almost said demand—of so large and honorable a body of men, cannot safely be disregarded or deferred. They ask it as guardians of the public and solely in the interest of the public. It is confidently believed that the slight expense which these analyses would involve, would be returned to the State a hundred-fold. We would find at home what is now sought abroad, but at an enormous expense; we would bring hundreds of visitors to our coast and build up many of the waste places of the State. If precedent were needed we can find it in the well settled policy of Germany. For generations the Professors of Chemistry in the various universities of Germany have been charged with the analysis of the mineral waters in their particular Duchy or Kingdom.

The Government has expected at their hands a most careful and thorough investigation; and as a result of this policy, continued through a long series of years, the springs of Germany and their characteristic properties are better known than any others upon the face of the earth. Equally favorable results may be expected here in California when once this system has been thoroughly and successfully in operation. The investigation of the medicinal plants, minerals, etc., of the State, as prescribed by the statute creating the office of State Analyst, is of great importance. This is so apparent to every one that no general discussion of the subject is called for in this place.

To the duties already prescribed might well be added that of examining the burning oils sold within the State. This is a part of the duties of public Analyst in other States and countries. I have collected from the Fire Marshal of San Francisco the following statistics, showing the number and the damages caused by fires having their origin in the explosions of coal oil lamps:

From.	To.	Explosions of Coal Oil Lamps.	Loss.
July 1, 1864	June 30, 1874	28	$12,709 60
July 1, 1874	June 30, 1875	9	567 00
July 1, 1875	June 30, 1876	16	8,499 00
July 1, 1876	June 30, 1877	18	16,827 60
July 1, 1877	June 30, 1878	27	6,206 62
July 1, 1878	June 30, 1879	29	9,834 50
July 1, 1879	June 35, 1880	34	47,906 87
July 1, 1880	June 30, 1881	29	58,735 72
July 1, 1881	June 30, 1882	33	51,235 00
July 1, 1882	June 30, 1883	35	25,424 71
July 1, 1883	June 30, 1884	33	6,875 48
July 1, 1884	June 30, 1885	17	29,344 29
July 1, 1885	February, 1886	17	5,456 10
Totals			$273,622 49

We find that the reported loss by fire caused by the explosion alone of coal oil lamps in the City of San Francisco, from July, 1864, to February, 1886, amounted to $273,622 49. A glance at the table will also show that the loss has increased very rapidly within a few years. From July 1, 1879, to June 30, 1885, six years, the loss amounts to $219,522 07. It is fair to suppose that these explosions were caused either from the use of unsafe oil or from bad lamps, but probably the fault is to be found in the oil. Comment is unnecessary.

THE ANALYSIS OF POTABLE WATER.

Before giving the results obtained in the examination of drinking water, I wish to discuss very briefly the subject of water examination for sanitary purposes. The investigation of potable water presents far greater difficulties than the general public know or think. When we reflect, however, how little is definitely known of the actual cause of many diseases, we can then begin to appreciate the difficulty or impossibility of detecting that unknown cause in water. The history of the various methods proposed for the examination of drinking water shows that these methods have changed with the theories of the causes of disease. The earlier methods were purely chemical, and a chemical analysis was all that was attempted. Let us for a moment consider what a chemical analysis may fairly be expected to accomplish. By it we come to a pretty accurate knowledge of the inorganic constituents of the water. Now this may be of importance, yet it is not as a rule vital. An excess of mineral matter is usually easily recognized even by an ordinary person, and it will be a thing of rare occurrence in the case of river or lake water supplied to cities and towns, that these inorganic constituents are objectionable or injurious. The organic material we have believed to contain, or was itself, this injurious thing in the water. It is impossible to identify this organic matter with anything like the certainty that we do the inorganic matter. Organic matter undergoes so many transformations, and so rapidly, that we cannot follow them, or at best only with the greatest difficulty, and very imperfectly. As a simple matter of fact, chemists have not attempted to separate the organic matter which may exist in water into the various compounds which it may contain, and then recognize and identify these separate compounds. This is an impossibility. The most that we have dared to hope for, has been to get some general hints and indications as to the nature of this organic matter. The various methods employed by different chemists have this general aim.

The assumption or presumption is, that all matter of animal origin is bad, or sure to become so very quickly; vegetable matter may be, or may become objectionable. Above all things, the excreta of the animal body, especially when diseased, the secretions of diseased organs, these are bad, and only bad. Why these secretions have been so injurious, has not always been so easily explained. Prof. Mallet,* in his investigation of potable water, undertaken for the National Board of Health, calls attention to the fact that no known poison can produce, in the diluted state, the effects which can be traced to a drinking water contaminated with human excreta. In short, there seems to be no dilution which can make such polluted waters safe. This is an accepted doctrine of hygiene. The chemical methods used to give some indication as to the character of a water, *i. e.*, the organic matter contained in the water, may be classed as follows:

I. The treatment with permanganate of potash.
II. The combustion method (involving an organic analysis).
III. The albuminoid ammonia process.

In addition, a determination of the nitrates and nitrites is called for; the free oxygen, ammonia, chlorine, suspended matters, the amount of mineral matter, etc., should be determined in an examination of potable water. When, by the use of the most accurate chemical methods, we have accomplished all this, we have, at the very most, only a suggestion as to the character of the water. It is possible that the indications obtained by the chemical examination may be in every respect satisfactory, and yet the water may be dangerous. Prof. Frankland,† in a discussion of the subject of potable water, quotes the classical investigation of Dr. Hägler, of Basel, in which is shown that the pure mountain water was contaminated with the secretions of a single typhoid fever patient; and, as this water was the water supply of the village of Lausenne, near Basel, Switzerland, an epidemic of typhoid fever broke out, and was clearly traced to the water of the town. Diluted as those secretions must have been, it is not to be supposed that any chemical examination of the water would have revealed any suspicion in regard to it. The water could not have been convicted upon any chemical testimony.

Pasteur has demonstrated a theory of fermentation, which has been widely extended, and now explains the ordinary phenomena of putrefaction and decay. This same theory, still further extended, accounts for the spread of certain zymotic diseases. This germ theory of disease explains better than any other the communication of disease through the medium of potable water. Now, while the pure water may carry the germ of disease, it is not so likely to nourish and propagate it. On the other hand, the water which chemical tests have shown to be impure, *i. e.*, which contains organic matter in excess, which is putrefying, or very liable to—this is the culture fluid for the germs of disease; this is the explanation why such waters are dangerous.

---

* Report of National Board of Health, p. 201.
† Journal of the Chemical Society, 1876; vol. 29, p. 826.

With this presentation of the results of chemical investigation of waters, it is evident that other methods, and the help of other departments of science, are called for. We naturally turn to biology, and to its methods, in the hope that, with a history of the germ, and a knowledge of its growth and development, we may the better recognize its presence. Professor Koch, of Berlin, has, for the last few years, practiced a method suggested by his bacteriological studies. His method is based upon the culture of the germs in a medium so arranged that the groups or colonies of germs which are developed can be observed and counted. This is a more rational method, if germs are the cause of disease; yet there is very much to be investigated; and, at the very most, we are obliged to draw our conclusions very cautiously, and state them modestly.

The chemical method enables us to say of certain waters containing an excess of easily decomposable matter, that they are bad, or very likely to become so. The biological and bacteriological methods will give still further information in regard to the water, but still we must confess that it will be difficult in many cases to say with certainty this or that water is good, absolutely free from any injurious substance or body. The evidence that we get is more negative than positive. When a water is known to be polluted, this fact outweighs all the negative results of a chemical investigation. The method of Professor Koch applied to the various methods of purifying water, shows that some of these methods are of great value, and that water teeming with germs was practically freed from these waters during certain filtrations, etc. There is a tendency on the part of running water to self purification, and especially when it is filtered through sand, porous rocks, etc.

I have felt called upon to make this preliminary statement in regard to the value of water analysis in general, in order that the results of the analyses here reported may not be misunderstood. The examination has been purely chemical, and all that I dare to claim for them is negative evidence.

Three samples of water were sent to me from the office of the State Board of Health. These were marked Sanborn Wells, Sacramento River, Sacramento River, from hydrant. The following report was returned:

	Sanborn Wells, pts. per 1,000,000.	Sacramento River, pts. per 1,000,000.	Sacramento River, from hydrant, pts. per 1,000,000.
Total amount of solid matter	320.00	110.00	----------------
Chlorine	64.4	6.4	6.3
Free ammonia	0.06	0.1	0.05
Albuminoid ammonia	0.70	0.1	0.13
Nitrates and nitrites	3.02	----------------	1.02

Qualitative analysis of the inorganic substances in Sanborn Wells: Alumina, iron, lime, magnesia, potash, soda, hydrochloric, sulphuric, carbonic, and silicic acids. The hardness of Sanborn Wells is considerably greater than the Sacramento River water. The above analysis shows nothing that would indicate that these waters are not suitable for domestic use. No experiments were made with the method of Professor Koch.

Two samples of water were received from Dr. J. S. Baker, Health Officer of Los Angeles, marked I and II.

The examination for free ammonia showed 0.1.8 parts in 1,000,000 for No. I, and 0.0.2 for No. II. The albuminoid ammonia was in both cases less than 1.01 parts in 1,000,000.

This test would place both very high so far as organic matter is concerned. The test shows them to be practically the same.

TOTAL SOLID.

	I. Grains per Gal.	II. Grains per Gal.
Residue	28.49	
Chlorine	0.17	0.17
Nitrites	None.	None.
Calcium Carbonate	11.6	*
Magnesium Carbonate	3.33	*

* No separate determination was made, as there seemed to be no difference.

The water was clear, without odor, and judged by the result of the chemical analysis, in every way unobjectionable. The hardness would largely disappear upon boiling, or upon the addition of a small amount of lime water.

W. B. RISING,
State Analyst.

STATEMENT

Of the Expenses of State Board of Health for thirty-sixth fiscal year, ending June 30, 1885.

1884.			
Appropriation			$1,250 00
Aug.	16—Dr. Baldwin, quarantine services at Yuma	$113 85	
	Dr. Hatch	40 75	
Sept.	12—Dr. Hatch	66 87	
	Dr. Gibbons, Sr.	15 00	
Oct.	10—Dr. Hatch, office rent	21 25	
Nov.	19—Office rent	21 25	
Dec.	2—Dr. Orme, traveling expenses	50 00	
	Dr. Crowder, traveling expenses	8 00	
	Dr. Briceland, traveling expenses	22 00	
1885.			
Jan.	7—Postal cards	10 00	
	Postage, stamps, and express	48 23	
	Post Office rent	2 00	
	15—Traveling expenses of members	107 00	
Feb.	7—Stamps, rent	30 00	
Mar.	1—Postage, etc.	12 85	
	20—Stamps, postage, etc.	40 00	
	27—Sanitarian and rent	29 00	
April	16—Traveling expenses	20 00	
	18—Traveling expenses of members	12 00	
	Traveling expenses of members	50 00	
	22—Expressage	89	
	29—Rent, stamps, and expressage	30 35	
May	12—Expressage circulars	12 30	
	Postal cards and stamps	20 00	
	29—Rent and expressage	25 85	
June	15—Postal cards	5 00	
	19—Cabinet from late Dr. Hatch	40 00	
	22—American Health Association	32 40	
	Office rent	25 00	
	Total	$911 84	
	Balance	388 16	
	Total	$1,250 00	$1.250 00

STATEMENT

Of the Expenses of State Board of Health for thirty-seventh fiscal year, ending June 30, 1886.

1885.			
	Appropriation		$1,250 00
July 1	Post Office rent	$2 00	
15	Postage stamps	5 00	
16	Telegraph	2 20	
20	Express	50	
31	Sanitary News	2 00	
	Traveling expenses members of Board	104 00	
	Rent of office	25 00	
Aug. 26	Stamps and rent	30 00	
Sept. 4	Seven copies of Sanitary Engineer	28 00	
20	Postal cards	20 00	
	Office rent and Post Office	27 00	
Oct. 12	Postage stamps	5 00	
	Traveling expenses of members	92 00	
19	Postage stamps	5 00	
24	Postage stamps	14 00	
27	Postage stamps	5 00	
30	Rent	25 00	
Nov. 30	Rent	25 00	
Dec. 11	Stamps	5 00	
	Post Office rent	2 00	
	Office rent	25 00	
1886.			
Jan. 12	Traveling expenses of members	104 00	
14	American Health Association	25 15	
	American Health Association, Vol. XI	5 00	
15	Postage stamps	10 25	
31	Office rent	25 00	
Feb. 10	Postage stamps	10 00	
	Sanitarian	4 00	
	Postage	3 97	
28	Rent	25 00	
Mar. 12	Stamps	5 00	
31	Post Office rent and office	27 00	
April 15	Directory holder	2 50	
19	Traveling expenses of members	147 00	
29	Expressage and stamps	15 35	
	Statistician	4 00	
30	Office rent	25 00	
May 2	Prize essays	8 00	
4	Telegrams	2 20	
5	Traveling expenses	25 00	
29	Postal cards and stamps	20 00	
31	Rent	25 00	
June 19	Stamps	10 00	
	Rent	25 00	
	Total	$1,002 12	
	Unexpended	247 88	
	Total	$1,250 00	$1,250 00

NAMES AND RESIDENCES OF CORRESPONDENTS

Of the State Board of Health for the year ending June 30, 1886.

Dr. J. E. S. Baker	Angels Camp, Calaveras County.
Dr. S. C. Gibson	Anderson, Shasta County.
Dr. E. C. Rhodes	Arbuckle, Colusa County.
Dr. R. F. Rooney	Auburn, Placer County.
Dr. Samuel McCurdy	Azusa, Los Angeles County.
Dr. T. H. Mayon	Amador City, Amador County.
Dr. A. Fouch	Anderson, Shasta County.
Dr. J. H. Bullard	Anaheim, Los Angeles County.
Dr. J. M. Vance	America, Santa Clara County.
Dr. J. M. Forrest	Alturas, Modoc County.
Dr. C. H. Gibbons	Arbuckle, Colusa County.
Dr. C. A. Rogers	Bakersfield, Kern County.
Dr. V. Newmark	Benicia, Solano County.
Dr. F. H. Payne	Berkeley, Alameda County.
Dr. O. C. Hawkins	Biggs Station, Butte County.
Dr. D. Walker	Bodie, Mono County.
Dr. J. H. Johnson	Calico, San Bernardino County.
Dr. C. C. Mason	Chico, Butte County.
Dr. M. F. Price	Colton, San Bernardino County.
Dr. J. O. Smith	Cottonwood, Shasta County.
Dr. J. Parker	Castroville, Monterey County.
Dr. W. A. Patterson	Cedarville, Modoc County.
Dr. R. S. Markell	Cloverdale, Sonoma County.
Dr. A. M. Gardner	Calistoga, Napa County.
Dr. H. N. Miner	Colfax, Placer County.
Dr. G. F. Mason	Cloverdale, Sonoma County.
Dr. E. J. R. de Turbeville	Camptonville, Yuba County.
Dr. A. Trafton	Dixon, Solano County.
Dr. Alemby Jump	Downieville, Sierra County.
Dr. A. C. Collins	Davisville, Yolo County.
Dr. E. W. Bathurst	Etna Mills, Siskiyou County.
Dr. J. A. McKee	Elk Grove, Sacramento County.
Dr. N. S. Giberson	Eureka, Humboldt County.
Dr. D. E. Barger	El Paso de Robles, San Luis Obispo County.
Dr. Paul Reudy	Forest Hill, Placer County.
Dr. G. M. Kober, U. S. A.	Fort Bidwell, Modoc County.
Dr. F. Durant	Folsom, Sacramento County.
Dr. A. J. Pedlar	Fresno, Fresno County.
Dr. M. M. Rowley	Fall River, Shasta County.
Dr. T. V. Goodspeed	Galt, Sacramento County.
Dr. W. C. Jones	Grass Valley, Nevada County.
Dr. C. A. E. Hertel	Gonzales, Monterey County.
Dr. J. R. Todd	Gridley, Butte County.
Dr. J. G. Cooper	Haywards, Alameda County.
Drs. C. F. Miller and H. V. Armistead	Hill's Ferry, Stanislaus County.
Dr. J. A. Davidson	Hanford, Tulare County.
Dr. N. B. Coffman	Healdsburg, Sonoma County.
Dr. E. G. Camplin	Hollister, San Benito County.
Dr. H. Schaffer	Igo, Shasta County.
Dr. A. L. Adams	Ione, Amador County.
Dr. J. N. M. McGowan	Jolon, Monterey County.
Dr. E. B. Robertson	Jackson, Amador County.
Dr. J. H. Lowe	Knights Ferry, Stanislaus County.
Dr. H. S. Taylor	Livermore, Alameda County.
Dr. J. S. Baker	Los Angeles, Los Angeles County.
Dr. J. Flint	Lincoln, Placer County.
Dr. D. W. White	Lakeport, Lake County.
Dr. L. M. Lovelace	Lemoore, Tulare County.
Dr. F. W. Colman	Lodi, San Joaquin County.
Dr. F. W. Knowles	Los Gatos, Santa Clara County.
Dr. David Powell	Marysville, Yuba County.
Drs. E. S. O'Brien and H. N. Rucker	Merced, Merced County.

Dr. J. N. Crabb	Millville, Shasta County.
Dr. C. W. Evans	Modesto, Stanislaus County.
Dr. F. R. Brown	Madera, Fresno County.
Dr. W. S. Kearney	Mariposa, Mariposa County.
Dr. W. E. Robe	Maxwell, Colusa County.
Dr. J. Leffler	Martinez, Contra Costa County.
Dr. A. Westfall	Monterey, Monterey County.
Dr. M. B. Pond	Napa, Napa County.
Dr. H. S. Welch	Nevada City, Nevada County.
Dr. M. Schnabel	Newcastle, Placer County.
Dr. Z. T. Magill	Nicolaus, Sutter County.
Dr. G. S. Farley	North San Juan, Nevada County.
Dr. F. Nelson	Nordhoff, Ventura County.
Dr. E. W. Buck	Oakland, Alameda County.
Dr. J. H. M. Karsner	Oroville, Butte County.
Dr. E. Chaffy	Ontario, San Bernardino County.
Dr. C. R. Castle	Point Arena, Mendocino County.
Dr. J. H. Crane	Petaluma, Sonoma County.
Dr. L. H. Patty	Petaluma, Sonoma County.
Dr. J. L. Dryer	Placerville, El Dorado County.
Dr. A. C. Smith	Plymouth, Amador County.
Dr. C. W. Brown	Pomona, Los Angeles County.
Dr. J. H. Miller	Redding, Shasta County.
Dr. A. W. Gamble	Redwood City, San Mateo County.
Dr. H. E. Stafford	Rocklin, Placer County.
Dr. John Fife	Red Bluff, Tehama County.
Dr. Jacob Allen	Riverside, San Bernardino County.
Dr. W. Bolton	Roseville, Placer County.
Board of Health	Sacramento, Sacramento County.
Dr. J. L. Meares	San Francisco, San Francisco County.
Dr. T. L. Magee	San Diego, San Diego County.
Dr. G. W. Coffin	Santa Barbara, Santa Barbara County.
Dr. C. L. Anderson	Santa Cruz, Santa Cruz County.
Dr. W. S. Thorne	San José, Santa Clara County.
Dr. R. P. Smith, Jr.	Santa Rosa, Sonoma County.
Dr. D. H. Ketcham	Santa Maria, Santa Barbara County.
Dr. Fred. Hutchins	Sierra City, Sierra County.
Dr. W. J. G. Dawson	St. Helena, Napa County.
Dr. G. W. Seifert	Santa Clara, Santa Clara County.
Dr. J. M. Briceland	Shasta, Shasta County.
Dr. T. R. Goodspeed	San Mateo, San Mateo County.
Dr. W. D. Groton	Susanville, Lassen County.
Dr. H. J. Crumpton	Saucelito, Marin County.
Dr. J. A. Crane	Santa Ana, Santa Barbara County.
Dr. E. E. Brown	Selma, Fresno County.
Dr. May Gydison	Salinas City, Monterey County.
Dr. S. G. Huff	San Bernardino, San Bernardino County.
Dr. W. W. Hayes	San Luis Obispo, San Luis Obispo County.
Dr. T. Phillips and Dr. A. T. Hudson	Stockton, San Joaquin County.
Dr. Wm. Curless	Truckee, Nevada County.
Dr. H. P. Tartar	Tehama, Tehama County.
Dr. R. G. Reynolds	Upper Lake, Lake County.
Drs. King and Hogshead	Ukiah, Mendocino County.
Dr. W. F. Lynch	Volcano, Amador County.
Dr. James Frost and Dr. W. D. Anderson	Vallejo, Solano County.
Dr. T. W. Pendergrass	Visalia, Tulare County.
Dr. A. J. Comstock	Ventura, Ventura County.
Dr. J. C. Montague	Weaverville, Trinity County.
Dr. W. D. Rodgers	Watsonville, Santa Cruz County.
Dr. Thos. Ross	Woodland, Yolo County.
Dr. H. C. Crowder	Williams, Colusa County.
Drs. Overend and Melton	Wheatland, Yuba County.
Dr. D. N. Mason	Willits, Mendocino County.
Dr. J. H. Wesscher	Yuba City, Sutter County.

HOSPITALS.

The following reports have been received from some of the county hospitals in the State. It is to be regretted that all the county hospitals are not represented, as the omission of any county mars the completeness of the record. It seems, however, that the records of some of our county hospitals are kept in such a careless and unsatisfactory manner that when a request is made for reliable data they are unable to supply it; hence the diseases and deaths of the indigent sick in these counties is unknown:

REPORT TO THE STATE BOARD OF HEALTH OF THE INDIGENT SICK

Treated in the Trinity County Hospital for the year ending December 31, 1884.

Total by each Disease	Diseases.	No. Deaths by each Disease	Total by each Disease	Diseases.	No. Deaths by each Disease
2	Accident, fracture of spine	2	-----	Pneumonia	1
2	Old age	2	-----		

Number of months reported	12	Died	5
Total on hand at commencement of year	7	Percentage of deaths	4.6
Total admitted	16	Remaining under treatment	5
Discharged cured	13		

The aged and infirm, as well as the indigent sick of the county, are maintained in the county hospital or infirmary. The building is located on elevated ground; good air, good ventilation, good drainage, and good water; unlimited space to each patient; the best supplies to be had; the best available medical attendance.

Name and location of hospital: COUNTY HOSPITAL, Weaverville, Trinity County, California.
Physician's name and Post Office address: J. C. MONTAGUE, M.D., Weaverville, California.

REPORT TO THE STATE BOARD OF HEALTH OF THE INDIGENT SICK

Treated in the Santa Clara County Hospital for the year ending December 31, 1884.

Total by each Disease	Diseases.	No. Deaths by each Disease	Total by each Disease	Diseases.	No. Deaths by each Disease
----	Suicide	1	-----	Hemorrhage of stomach	1
----	Phthisis	15	-----	Heart disease	4
----	Paralysis	10	-----	General debility	2
----	Softening of brain	1	-----	Goitre	1

Number of months reported	12	Discharged	218
Total on hand at commencement of year	86	Died	35
Total admitted	233	Percentage of deaths	9$\frac{1}{9}$
Discharged cured	120	Remaining under treatment	66

Name and location of hospital: SANTA CLARA COUNTY INFIRMARY, near San José, California.
Physician's name and Post Office address: J. L. BERRY, M.D., San José, Santa Clara County, California.

REPORT TO THE STATE BOARD OF HEALTH OF THE INDIGENT SICK

Treated in the San Joaquin County Hospital for the year ending December 31, 1884.

Total by each Disease	DISEASES.	No. Deaths by each Disease	Total by each Disease	DISEASES.	No. Deaths by each Disease
6	Granulated eyelids	----	3	Parturition	----
60	Rheumatism	----	7	Bubo	----
4	Biliousness	----	2	Broken arms	----
14	Senility	----	2	Apoplexy	----
4	Blind	----	1	Kicked by horse	----
8	Secondary syphilis	----	1	White swelling	1
14	General debility	6	4	Injury to side	----
10	Ague	----	21	Debility	----
4	Dropsy	1	1	Injured arm	----
1	Lumbago	----	2	Orchitis	----
16	Pneumonia	2	1	St. Vitus' dance	----
18	Ulcerated legs	----	3	Injury to head	----
10	Cripples	----	1	Mumps	----
2	Syphilitic rheumatism	----	1	Tumor on face	----
1	Rupture of bowels	----	2	Sprained shoulder	----
3	Fracture of hip	----	2	Hemorrhage	----
7	Sciatic rheumatism	----	3	Broken shoulder	----
4	Bronchitis	----	4	Injured hands	----
1	Urinary fistula	----	1	Burned wrist	----
21	Paralysis	4	1	Measles	----
11	Syphilis	1	1	Inflammatory rheumatism	----
17	Consumption	9	4	Indigent	----
2	Dog bites	----	1	Swelled testicles	----
3	Sprained ankles	----	4	Asthma	----
1	Neuralgia	----	2	Hemorrhoids	----
10	Gonorrhœa	----	4	Lunacy	----
1	Gangrene foot	----	2	Broken legs	----
2	Typhoid fever	----	1	Abscess on arm	----
9	Lung trouble	----	1	Idiot	----
3	Hernia	----	1	Internal injury	----
8	Strictures	----	1	Poison	----
14	Alcoholism	2	1	Sunstroke	----
2	Intermittent fever	----	1	Sore finger	----
7	Injury to feet	----	1	Sore throat	----
1	Congestion of the lungs	1	5	Remittent fever	----
2	Cut on hand and chin	----	1	Sore ankle	----
1	Cut on back	----	2	Diarrhœa	2
2	Erysipelas	----	1	Cut on knee	----
5	Cystitis	1	1	Injured spine	----
1	Fractured cranium	1	1	Injured leg	----
2	Broken ankles	----	1	Canker mouth	----
1	Influenza	----	1	Tapeworm	----
1	Injury to head and back	----	1	Abscess	----

Number of months	12	Discharged	288
Total on hand at commencement of year	80	Died	31
Total admitted	336	Percentage of deaths	7.46
Discharged cured	203	Remaining under treatment	97

Name and location of hospital: SAN JOAQUIN COUNTY HOSPITAL, Stockton, California.
Physician's name and Post Office address: W. A. WASHINGTON, M.D., County Physician, Stockton, California.

REPORT TO THE STATE BOARD OF HEALTH OF THE INDIGENT SICK

Treated in the Los Angeles Hospital for the year ending December 31, 1884.

Total by each Disease	Diseases.	No. Deaths by each Disease	Total by each Disease	Diseases.	No. Deaths by each Disease
1	Blind	----	1	Tumor	----
14	Paralysis	----	1	Lead poison	----
43	Rheumatism	2	1	Abscess	----
40	Phthisis	10	2	St. Vitus' dance	----
12	Asthma	1	3	Rupture	----
11	Fractures	----	1	Diarrhœa	1
1	Gout	----	2	Heart disease	----
6	Dropsy	5	3	Neuralgia	----
4	Wounds	1	2	Epilepsy	----
23	Fevers	1	4	Erysipelas	----
8	Ulcers	----	1	Skin disease	----
2	Sores	----	3	Hemorrhages	----
19	Bruises	2	1	Sore feet	----
1	Lumbago	----	6	Sore eyes	----
1	Piles	----	1	Sore ears	----
7	Old age	2	2	Liver complaint	----
2	Fistula	----	1	Measles	----
1	Syphilis	----	11	General debility	2
2	Dislocations	----	4	Paupers	----
4	Bronchitis	----	12	Colds	----
2	Malaria	----	1	Lame	----
1	Poisoned	----	1	Bright's disease	----
2	Confinement	----	1	Weak mind	----
1	Hysteria	1	2	Delirium tremens	----
1	Nervous disease	----	89	Not named	10
4	Dysentery	1	1	Sore hand	----
2	Sprains	----			

Number of months reported	12	Discharged	269
Total on hand at commencement of year	42	Died	40
Discharged cured	No record.	Percentage of deaths	9⅓
Total admitted	373	Remaining under treatment	54

Los Angeles County Hospital and Farm is situated in Los Angeles County, about one mile east of the city, on a farm of thirty-seven acres of rolling ground; is high and dry, with a fine view of the city and surrounding country. The hospital is surrounded by a fine orchard of orange, lemon, apple, peach, fig, and other fruit trees. The front is nicely laid out in flowers, and each side of the entrance road is bordered with cypress hedges, as is the front on both sides of the entrance. Along the sides and back are numerous pepper trees, for shade. The hospital is a large fine building of wood, two stories high, each twelve feet in clear, hard finished throughout, is set up about five feet from the ground, with wide porches around the front of building, and a wide porch above and below in the rear; containing seven large wards in the main building and two sunny wards in the rear, which are used for consumptive patients; each with nine or ten beds, each lighted with nine large windows. Both wards stand up ten feet above the ground; under one is the laundry fitted up with stationary tubs and hot and cold water. The seven large wards in the main building have room for ten to twelve beds in each. Two of the wards on the south each have five large windows; the two on the east and west front each have four windows. The main hallway is twelve feet wide; cross halls between the wards are ten feet wide. There are water-closets and bath-rooms on each floor. The front is occupied as office, dispensary, and storeroom, on one side of the hall; the other is occupied as reception-room and library. The second floor has three of the large wards and four smaller rooms that are occupied by the steward, matron, and nurses. In the rear of the main building, between the two wards in the rear, is the dining-room, seating at present fifty-four; under the dining-room is the kitchen, fitted up with range and hot-water tank, also storeroom and dining-room for employés. The house is supplied with water from the city waterworks. The sewerage is good, having a fall of about fifty feet, to a ravine with running water in, in the rear of the farm. Supplies are bought in Los Angeles as needed. Dr. Walter Lindley is medical attendant—visits every day. The house was built in 1878, and is now in good condition. The area to each patient I do not know.

WALTER LINDLEY, M.D.

Dr. Lindley took charge of the hospital January 8, 1885.

Name and Location of hospital: HOSPITAL AND POOR FARM, Los Angeles County, California.
Physician's name and Post Office address: WALTER LINDLEY, Los Angeles, California.

REPORT TO THE STATE BOARD OF HEALTH OF THE INDIGENT SICK

Treated in the Nevada County Hospital for the year ending January 31, 1884.

Total by each Disease	DISEASES.	No. Deaths by each Disease	Total by each Disease	DISEASES.	No. Deaths by each Disease
10	Paralysis	1	2	Gastritis	----
12	Syphilis	----	1	Scald	----
12	Rheumatism, chronic	----	4	Pneumonia	1
21	Rheumatism, acute	----	1	Meningitis	1
6	Blind	----	2	Cancer	1
2	Ophthalmia	----	1	Heart, valvular disease of	----
2	Softening brain	1	1	Dementia	----
4	Concussion brain	----	1	Hæmoptysis	1
1	Diabetes	----	1	Hemorrhoids	----
8	Delirium tremens	----	2	Amaurosis	----
3	Asthma	----	1	Dislocation, shoulder	----
2	Epilepsy	1	3	Sprain, ankle	----
7	Bronchitis	1	2	Fracture, compound	----
1	Tuberculosis	----	3	Fracture	----
1	Phthisis	----	3	Wounds	----
3	Cystitis	----	1	Old age	1
1	Bilious fever	----	3	Unknown	----
3	Intermittent fever	----	30	Indigent poor	----
1	Alcoholism	1	1	Stricture, urethra	----

Number of months reported	12	Died	10
Total admitted	163	Percentage of deaths	6.13
Discharged cured	33	Remaining under treatment	65
Discharged	55		

Name and location of hospital: NEVADA COUNTY HOSPITAL, Nevada City, California.
Physician's name and Post Office address: Dr. R. W. HUNT, Nevada City, California.

REPORT TO THE STATE BOARD OF HEALTH OF THE INDIGENT SICK

Treated in the San Benito County Hospital for the year ending December 31, 1885.

Total by each Disease	DISEASES.	No. Deaths by each Disease	Total by each Disease	DISEASES.	No. Deaths by each Disease
1	Asthma	----	1	Chronic syphilis	----
2	Acute rheumatism	----	1	Accident	----
1	Pneumonia	----	1	Accident—injury to head	----

Number of months reported	12	Discharged	1
Total on hand at commencement of year	4	Died	None.
Total admitted	10	Percentage of deaths	None.
Discharged cured	11	Remaining under treatment	2

Located on San Benito Street, in the corporation, just below the business portion of the town. Ventilation good; clean, airy rooms; sewerage good.

Name and location of hospital: COUNTY HOSPITAL, San Benito County, California.
Physician's name and Post Office address: E. G. CAMPLIN, M.D., Hollister, California.

REPORT TO THE STATE BOARD OF HEALTH OF THE INDIGENT SICK

Treated in the Mendocino County Hospital for the year ending December 31, 1884.

Total by each Disease	DISEASES.	No. Deaths by each Disease	Total by each Disease	DISEASES.	No. Deaths by each Disease
2	Aneurism aorta	1	2	Typhoid	----
3	Paralysis	1	3	Fractures	----
1	Tetanus	1	1	Cataract	----
6	Phthisis	2	2	Gonorrhœa	----
3	Cancer	2	8	Rhumatism—simple	----
4	Syphilis	-----	4	Rhumatism—inflammatory	----
3	Pneumonia	-----	5	Bronchitis	----
1	Inflammation of bowels	1	1	Indigent and old age	----
2	Malarial intermittent	-----	7		

Location of hospital is on high gravelly land; no sewerage, but good natural drainage. Ventilation good; supplies excellent; no resident physician; one visiting physician, who is Superintendent of hospital and farm. The plan of the hospital is exactly that of the Sacramento hospital. Only one ward built and used during 1884. This ward is now three years old. Two additional wards have been built this year, 1885. Water is supplied from well and tank. An average of eighteen inmates in hospital, which gives ninety square feet to each patient, surface area.

Name and location of hospital: MENDOCINO COUNTY HOSPITAL, Ukiah City, California.
Physician's name and Post Office address: BARTON DOZIER, M.D., Ukiah City, California.

REPORT TO THE STATE BOARD OF HEALTH OF THE INDIGENT SICK

Treated in the Contra Costa Hospital for the year ending January 1, 1885.

Total by each Disease	DISEASES.	No. Deaths by each Disease	Total by each Disease	DISEASES.	No. Deaths by each Disease
10	Phthisis pulmonalis	7*	26	Syphilis	----
5	Bright's disease	2*	15	Malaria	----
48	Rheumatism	-----			

*The remaining three were taken care of by friends, and died outside of hospital.

Number of months reported	12	Discharged	89
Total on hand at commencement of year	15	Died	9
Total admitted	101	Percentage of deaths	0.6
Discharged cured	Can not now ascertain.	Remaining under treatment	18

A comparatively large number have been marked "marasmus senilis," this institution being almshouse as well as hospital.

This hospital is located within the town limits, on the slope of a beautiful hill, with a fine view of Alhambra Valley and of Suisun Bay. It is protected from the west winds by a still higher hill. It consists of three buildings—one for the men, one ostensibly for the women, but generally used for cases whom it is desirable to isolate. The middle building serves as a dining-room and kitchen. The sewerage water is utilized for irrigating about four acres of fruit trees, grapevines, and vegetables. Ventilation is perfect. Medical attendance daily. Supplies are contracted for and furnished by the merchants of the town, and taken care of by the medical attendant, who is at the same time general superintendent. Plenty surface area to each patient; can not now ascertain the number of square feet. Good water, and enough of it for cooking, bathing, and irrigating purposes, supplied by a windmill. The place has been occupied for three years, and I think it compares favorably with any hospital of its size in this State that I have seen.

Name and location of hospital: CONTRA COSTA HOSPITAL, Martinez.
Physician's name and Post Office address: H. BERNETT, M.D., Martinez, Contra Costa County.

REPORT TO THE STATE BOARD OF HEALTH OF THE INDIGENT SICK

Treated in the Napa County Hospital for the year ending December 31, 1884.

Total by each Disease	DISEASES.	No. Deaths by each Disease	Total by each Disease	DISEASES.	No. Deaths by each Disease
4	Rheumatism	----	1	Renal colic	----
3	Bronchitis	----	3	Diarrhœa	----
1	Delirium tremens	----	1	Poison oak	----
1	Panama fever	----	2	Lumbago	----
5	Intermittent fever	----	2	Chronic ulcer	----
1	Paralysis	----	1	Fistula in ano and syphilis	1
4	Phthisis pulmonalis	4	55	Indigent, with slight illness, or injury, or left while under treatment	----
1	Sciatica	----			
2	Influenza	----			
2	Aneurism aorta	2			

Number of months reported	12	Discharged	55
Total on hand at commencement of year	26	Died	7
Total admitted	82	Percentage of deaths	7.56
Discharged cured	27	Remaining under treatment	19

NOTE.—The percentage is of all under my care during the year, whether treated or not, no account having been kept of those included in the last item (55).

The hospital is a frame building, located about a mile and a half from Napa City. It is very well ventilated, and the sewerage is ample. The physician receives a salary, and visits the hospital when necessary. Plenty of good well water, and about five acres of land under cultivation.

Name and location of hospital: NAPA COUNTY INFIRMARY, Napa City, California.
Physician's name and Post Office address: E. HAUN, M.D., Napa City, California.

REPORT TO THE STATE BOARD OF HEALTH OF THE INDIGENT SICK

Treated in the Shasta County Hospital for the year ending December 31, 1885.

Total by each Disease	DISEASES.	No. Deaths by each Disease	Total by each Disease	DISEASES.	No. Deaths by each Disease
10	Phthisis pulmonalis	4	3	Hæmatemesis	1
3	Nephritis (chronic)	----	2	Hemorrhoids	----
4	Cancer	4	1	Asthma	----
4	Alcoholism	----	1	Fracture leg, compound (blood poison)	1
5	Cirrhosis	2			
2	Paralysis	----	3	Eczema	----
2	Dysentery (chronic)	1	1	Hepatitis	----
2	Amaurosis	----	5	Wounds of foot (ax)	----
3	Chronic ulcers (leg)	----	1	Constipation	----
1	Cataract	----	1	Measles	----
12	Rheumatism	----	1	Fracture femur	----
1	Vertigo	----	1	Congestion brain	1
1	Ataxia (leg)	----	2	Cystitis	----
3	Meningitis (chronic)	1	1	Orchitis	----
3	Debility (old age)	----	1	Dislocation shoulder	----
4	Conjunctivitis	----	1	Hernia	----
15	Malarial fever	----	1	Varicose veins	----
2	Abscess (in. max.)	----	1	Pneumonia	1

Number of months reported	12	Discharged	16
Total on hand at commencement of year	27	Died	16
Total admitted	106	Percentage of deaths	.12
Discharged cured	58	Remaining under treatment	37

Shasta County Hospital is located three quarters of a mile from the Town of Shasta, the county seat of Shasta County. There are six separate buildings, five of which are for accommodation of patients, one for Steward and family. Drainage excellent. Water supply ample. Forty patients can be comfortably accommodated. One Physician and one Steward. Institution sustained by tax of $2 per capita.

Name and location of hospital: SHASTA COUNTY HOSPITAL, Shasta County, California.
Physician's name and Post Office address: J. M. BRICELAND, M.D., Shasta, California.

REPORT TO THE STATE BOARD OF HEALTH OF THE INDIGENT SICK

Treated in the Los Angeles County Hospital for the year ending December 31, 1885.

Total by each Disease	DISEASES.	No. Deaths by each Disease.	Total by each Disease	DISEASES.	No. Deaths by each Disease.
5	Alcoholism	----	1	Hair lip	----
7	Blind	----	1	Inflammation of bowels	4
12	Brain disease	----	3	Liver complaint (hepatitis)	----
3	Burn	----	4	Necrosis	----
8	Bowel complaint	----	6	Nervous disease	1
1	Cancer	----	11	Kidney disease (Bright's)	1
11	Cold	----	26	Paralysis	6
4	Confinement	----	2	Piles	----
87	Consumption	30	74	Rheumatism	1
57	Fever (typhoid)	6	7	Rupture	----
18	Fracture	----	1	Skin disease	1
2	Fistula	----	23	Syphilis	----
86	General debility (senility)	7	1	Tumor	----
4	Gout	----	34	Ulcer	----
20	Heart disease	5	49	Wound	----
3	Hydrocele	----	23	Miscellaneous diseases	----

Number of months reported	12	Discharged	481
Total on hand at commencement of year	59	Died	62
Total admitted	563	Percentage of deaths	9.08
Discharged cured	453	Remaining under treatment	79

Name and location of hospital: LOS ANGELES COUNTY HOSPITAL AND ALMSHOUSE, Los Angeles, California.
Physician's name and Post Office address: WALTER LINDLEY, 237 South Spring Street, Los Angeles, California.

REPORT TO THE STATE BOARD OF HEALTH OF THE INDIGENT SICK

Treated in the San Bernardino Hospital for the year ending January 1, 1885.

Total by each Disease	DISEASES.	No. Deaths by each Disease	Total by each Disease	DISEASES.	No. Deaths by each Disease
3	Insane	----	11	Consumption	----
2	Fever	----	2	Old age	----
2	Paralysis	----			

Number of months reported	12	Discharged	57
Total on hand at commencement of year	53	Died	20
Total admitted	111	Remaining under treatment	55
Discharged cured	57		

NOTE.—Nearly all of the patients admitted here are from a distance, and a large percentage have lung disease.

The present hospital accommodations are not as good as they should be, but we are building a new hospital that will be all that is required. Supplies, water, medical aid, and everything about the hospital are all right, if the place were larger, which it will be in a short time.

Name and location of hospital: SAN BERNARDINO HOSPITAL, San Bernardino, California.
Physician's name and Post Office address: J. C. PEACOCK, M.D., County Physician, San Bernardino, California.

REPORT OF THE STATE BOARD OF HEALTH OF THE INDIGENT SICK

Treated in the Kern County Hospital for the year ending December 31, 1885.

Total by each Disease	DISEASES.	No. Deaths by each Disease	Total by each Disease	DISEASES.	No. Deaths by each Disease
40	Malaria	----	1	Fracture	----
16	Malarious fever	2	1	Compound fracture	----
4	Consumption	3	1	Fracture of skull	1
12	Rheumatism	----	4	Shot wounds	2
1	Bronchitis	1	6	Abscesses	----
6	Pneumonia	----	1	Frozen feet	----
3	Dyspepsia	----	2	Burns	----
5	General debility	1	1	Contusion	----
2	Paralysis	----	1	Abscess of mammary glands	----
1	Lobar pneumonia	1	1	Amputation of leg	1
2	Dysentery	----	1	Tumor operation	----
3	Asthma	2	2	Operation of piles	----
4	Syphilis	----	6	Ulcers	----
1	Neuralgia	----	29	Indigent	----

Number of months reported	12	Discharged	14
Total on hand at commencement of year	12	Died	14
Total admitted	157	Percentage of deaths	.89
Discharged cured	119	Remaining under treatment	10

The Kern County Hospital is situated five hundred yards southwest of Bakersfield. The building covers four thousand eight hundred square feet. The wards are well ventilated. The building contains two wards, each eight beds, three single rooms, containing two beds each, office, dining room, kitchen, bath-room, and hallway. All medicines and supplies are furnished by the county—no contract system. Water is furnished by the Bakersfield Water Company. Each patient has an area of fifty-four square feet.

Name and location of hospital: KERN COUNTY HOSPITAL, Bakersfield, Kern County, California.
Physician's name and Post Office address: L. S. ROGERS, M.D., Bakersfield, California.

REPORT TO THE STATE BOARD OF HEALTH OF THE INDIGENT SICK

Treated in the Mendocino County Hospital for the year ending January 1, 1886.

Total by each Disease	DISEASES.	No. Deaths by each Disease	Total by each Disease	DISEASES.	No. Deaths by each Disease
2	Cancer	2	1	Abscess	----
4	Phthisis	----	1	Stricture	----
1	Ovarian tumor	----	1	Loss of memory	----
10	Syphilis	----	3	Rheumatism (inflammatory)	----
3	Heart disease	----	5	Rheumatism (chronic articular)	----
2	Bright's disease	----	1	Diabetes	----
1	Cataract	----	1	Opium habit	----
2	Paralysis	----	5	General debility	----
4	Fractures	----	3	Intermittent fever *	----
2	Pneumonia	----	11	Old age and indigent	1
3	Typhoid fever	----	10	Relapses and returned for treatment during year	----
1	Chronic ulceration cornea	----			

* Imported; does not originate here.

Number of months reported	12	Discharged	7
Total on hand at commencement of year	19	Died	3
Total admitted	58	Remaining under treatment	22
Discharged cured	45		

Hospital consists of three wards, substantially hard-finished. One ward has been in use three years; the other two, one year. Is located on dry, high ground. Has farm in connection with hospital. Ample surface area per patient. One Physician (visiting), who is also Superintendent. Sewerage and ventilation good. Supplies gotten by contract with local merchants.

Name and location of hospital: MENDOCINO COUNTY HOSPITAL, Ukiah City, California.
Physician's name and Post Office address: BARTON DOZIER, M.D., Ukiah City, Mendocino County, California.

REPORT TO THE STATE BOARD OF HEALTH OF THE INDIGENT SICK

Treated in the San Joaquin County Hospital for the year ending January 1, 1885.

Total by each Disease	DISEASES.	No. Deaths by each Disease	Total by each Disease	DISEASES.	No. Deaths by each Disease
7	Paralysis	3	1	Scalded arm and side	----
5	Scalp wounds	-----	5	Cripples	----
32	Alcoholism	1	1	Pleurisy	----
41	Rheumatism	-----	2	Insane (sent to asylum)	----
3	Pneumonia	3	3	Abcess of lungs	----
1	Senility	-----	3	Abcess of arms and legs	----
4	Dyspepsia	-----	1	Heart disease	1
4	Asthma	1	2	Carbuncle	----
2	Chronic rheumatism	-----	2	Remittent fever	----
1	Dropsy	1	1	Womb disease	----
3	Cystitis	-----	2	Poison oak	---
22	General debility	1	1	Bronchitis	----
5	Broken ribs	-----	1	Hernia	----
5	Gonorrhœa	-----	-----	Dislocated shoulder	----
16	Consumption	11	1	Chronic dysentery	1
2	Broken legs	-----	1	Broken jaw	----
5	Injured hands	-----	1	Hemorrhoids	----
5	Poverty	-----	1	Scrofula of throat	1
1	Broken ankle	-----	1	Epilepsy	----
7	Granulated eyelids	-----	2	Sunstroke	----
1	Broken arm	-----	2	Sciatic rheumatism	----
1	Injured foot	-----	2	Indigestion	----
4	Sprained ankle	-----	1	Sprained wrist	----
1	Injured side	-----	1	Eczema	----
14	Ague	-----	4	Blind	----
6	Ulcer of legs	-----	1	Gangrene gout	----
1	Bubo	-----	1	Idiot	----
3	Syphilitic rheumatism	-----	2	Opium habit	----
1	Gunshot wound of knee	-----	1	Hemorrhage	1
1	Salivated	-----	2	Congestion of lungs	2
3	Typhoid fever	1	1	Uremic poison	1
2	Dislocated shoulder	-----	2	Pyemia	----
5	Secondary syphilis	-----	1	Meningitis	1

Number of months reported	12	Discharged	282
Total on hand at commencement of year	97	Died	32
Total admitted	330	Percentage of deaths	7.49
Discharged cured	170	Remaining under treatment	113

The hospital is located just without the eastern limits of the City of Stockton. The location is on level, valley land. The building is frame, facing the west, with wings to the north and south—with an extension from the center to the east. The center is three stories; the wings and extension two stories. There are, in addition, three other smaller buildings, two of which are used by patients. The ventilation is good. There was an average of one hundred and one patients during the year. There are thirty-eight acres of land, equal to thirty-seven per cent of an acre to each patient. The total expense of the institution was $17,266 05 for the year. This sum covers everything. The daily per capita cost of maintenance was 44⅔ cents. The food and clothing are ample and substantial. The main building has been occupied seven years. The drainage is defective. The water supply for hospital use is abundant, and of the best. It is insufficient for irrigating purposes. The physician does not reside in the hospital, but in the town. His salary is $600, and he does $1,500 worth of work. The hospital has a good supply of milk.

Name and location of hospital: COUNTY HOSPITAL, Stockton, San Joaquin County, California.
Physician's name and Post Office address: W. A. WASHINGTON, M.D., Stockton, California.

REPORT TO THE STATE BOARD OF HEALTH OF THE INDIGENT SICK

Treated in the Sonoma County Hospital for the year 1885.

Total by each Disease	DISEASES.	No. Deaths by each Disease.	Total by each Disease	DISEASES.	No. Deaths by each Disease.
7	Pneumonia, acute	1	2	Milk leg, or embolism femoral artery	----
2	Pneumonia, chronic	----			
2	Bronchitis, acute	----	2	Insanity, acute	----
5	Bronchitis, chronic	----	1	Orchitis	----
22	Consumption	8	1	Diabetes mellitus	----
15	Constitutional syphilis	----	1	Strangulated hernia	----
6	Rheumatism, acute	----	1	Concussion of spine	----
5	Rheumatism, chronic	----	1	Anemia	----
4	Paralysis	----	1	Cystitis, chronic	----
1	Apoplexy	----	1	Bubo	----
1	Concussion of brain	----	1	Fistula in ano	----
1	Epilepsy	----	9	Fracture of legs	----
3	Alcoholism	----	6	Fracture of arms	----
10	Delirium tremens	----	1	Fracture of patella	----
9	Dyspepsia	----	2	Fracture of clavicle	----
1	Chronic inflammation bowels	----	1	Gangrene from gunshot wounds	1
3	Typhoid fever	----	1	Traumatic peritonitis	1
3	Meningitis, acute	----	1	Wound of brachial artery	----
1	Prog. locomotor ataxia	----	2	Dislocation of shoulder	----
2	Cancer	1	2	Fracture of ribs	----
2	Dysentery	----	4	Incised wounds	----
1	Cholera morbus	----	1	Frost-bitten feet	----
2	Gonorrhœa	----	1	Rattlesnake bite	----
1	Piles	----	2	Palmar felon	----
1	Hypochondriasis	----	1	Anemia	----
3	Bright's disease	2	1	Abscess	----
1	Gout	----	7	Sore legs (varicose)	----
3	Erysipelas	----	7	Chills and fever	----
2	Gastritis, acute	----	1	Ptyalism (from quicksilver mine)	----
2	Hydrocele	----	1	Mammary abscess	----
4	Heart disease	----	1	General debility	----
1	Aneurism aorta	----	2	Senile dementia	1

Number of months reported	12	Discharged	50
Total on hand at commencement of year	26	Died	15
Total admitted	167	Percentage of deaths	.0777
Discharged cured	90	Remaining under treatment	38

This building is somewhat more than twenty years old, made for fifteen or twenty patients at the most. As the county has increased in population the numbers in the hospital have kept pace, until now, in the Winter, we have occasionally over forty; at one time this Winter, forty-four patients. Of course it is entirely too crowded, but we hope to have a new building by Fall, outside of the city, which will be an honor to our county. This place is badly drained, and in no respect fitted to the use of the county for the purposes for which it is used. The Board of Supervisors allow me great latitude in furnishing supplies, and I get just what I think best, and they foot the bills. Of course they expect me to be economical; but what I mean to say is, they are very liberal.

Name and location of hospital: SONOMA COUNTY HOSPITAL, Santa Rosa, California.
Physician's name and Post Office address: R. PRESS SMITH, JR., Santa Rosa, California.

REPORT TO THE STATE BOARD OF HEALTH OF THE INDIGENT SICK

Treated in the Tehama County Hospital for the year ending January 1, 1885.

Total by each Disease	Diseases.	No. Deaths by each Disease	Total by each Disease	Diseases.	No. Deaths by each Disease.
39	Fever, intermittent	----	2	Delirium tremens	----
1	Fever, pernicious intermittent	1	1	Urethral stricture	----
16	Fever, remittent	----	4	Pneumonia, croupous	1
3	Fever, typho-malarial	1	1	Epilepsy	----
4	Rheumatism, acute	----	2	Arthritis	----
6	Rheumatism, sub-acute and chronic	----	4	Fracture	----
			1	Acute mania	----
4	Pulmonary consumption	2	2	Heart, valvular lesion	----
11	Dysentery, acute	1	1	Burns	----
4	Wounds	----	1	Acute meningitis	----
2	Wounds, gunshot	----	1	Cerebral apoplexy	1
1	Rectal cancer	1	2	Paralysis from apoplexy	----
1	Urethral fistula	----	----	Old age	1

Number of months reported	12	Discharged	15
Total on hand at commencement of year	20	Died	9
Total admitted	114	Percentage of deaths	6.72
Discharged cured	90	Remaining under treatment	20

Name and location of hospital: TEHAMA COUNTY HOSPITAL, Red Bluff, California.
Physician's name and Post Office address: JOHN FIFE, M.D., Red Bluff, California.

REPORT TO THE STATE BOARD OF HEALTH OF THE INDIGENT SICK

Treated in the El Dorado County Hospital for the year ending December 31, 1885.

Total by each Disease	Diseases.	No. Deaths by each Disease	Total by each Disease	Diseases.	No. Deaths by each Disease
1	Chronic diarrhœa	1	2	Disease of heart	2
2	Phthisis pulmonalis	2	1	Dropsy pericardium	1
2	Typhoid malaria	2	1	Pneumonia	1
1	Apoplexy	1	2	Tertiary syphilis	2

Number of months reported	12	Discharged	20
Total on hand at commencement of year	59	Died	12
Total admitted	45	Percentage of deaths	5
Discharged cured	20	Remaining under treatment	63

With respect to location, conditions, sewerage, etc., I have explained it in a former report.

Name and location of hospital: EL DORADO COUNTY HOSPITAL, Placerville, California.
Physician's name and Post Office address: H. W. A. WORTHEN, M.D., Placerville, California.

REPORT TO THE STATE BOARD OF HEALTH OF THE INDIGENT SICK

Treated in the Sierra County Hospital for the year ending December 31, 1884.

Total by each Disease	DISEASES.	No. Deaths by each Disease	Total by each Disease	DISEASES.	No. Deaths by each Disease
2	Fracture of tibula and fibula	----	2	Burn (scald)	----
1	Fracture of humerus	----	1	Dog bite	----
4	Dementia	3	1	Diarrhœa	----
1	Cystitis, chronic	----	1	Injury of ear	----
2	Sciatica	----	2	Heart disease	1
1	Coxalgia	1	3	Paralysis	----
6	Rheumatism, chronic	----	1	Paralysis, traumatic	----
3	Pneumonia	----	2	Pharyngitis	----
3	Bronchitis	----	1	Onanism	----
9	Alcoholism	1	1	Hydrocele	----
1	Hepatitis, chronic	----	1	Wound of foot	----
1	Consumption	----	1	Wound of hand	----
1	Fracture of patella	----	1	General prostration	----
1	Typhoid fever	----	1	Pain in head and double vision	----
1	Marasmus	1	1	Ulceration of cornea	----
2	Neuralgia	----	10	Old age	----

Number of months reported	12	Discharged	15
Total on hand at commencement of year	19	Died	7
Total admitted	49	Percentage of deaths	9.07
Discharged cured	24	Remaining under treatment	22

You will observe ten patients set down to old age, which is true in this case. They are men who came to the mountains in early days. They have created no homes, and the shallow mines will no longer afford them a living, consequently they drift into the county hospital. Their ages range from seventy-two to eighty-five years. Our county hospital is calculated for twenty-four patients, is handsomely situated, and well supplied with pure mountain water. Elevation above the sea level, three thousand feet. The drainage into the Yuba River is complete.

Name and location of hospital: SIERRA COUNTY HOSPITAL, Downieville, Sierra County, California.

Physician's name and Post Office address: ALEMBY JUMP, M.D., Downieville, California.

REPORT TO THE STATE BOARD OF HEALTH OF THE INDIGENT SICK

Treated in the Placer County Hospital for the year ending December 31, 1884.

Total by each Disease	DISEASES.	No. Deaths by each Disease	Total by each Disease	DISEASES.	No. Deaths by each Disease
3	Blindness		1	Necrosis of tibia	
5	Dropsy	2	1	Necrosis of foot	
8	Heart disease	1	1	Hydrocele	
3	Epilepsy		1	Impaction of colon	
9	Paralysis	1	1	Railway injury	
6	Bright's disease	4	1	Ozœna	
21	Rheumatism		2	Poison oak	
17	Phthisis pulmonalis	4	1	Dementia	
1	Dislocated shoulder		1	Stricture of rectum	
5	Alcoholism		3	Stricture of urethra	
4	Diabetes mellitus		1	Encephalitis	
1	Lumbago		1	Stabbed in side	
1	Unhealed stump		1	Renal congestion	
6	Ulcer of leg		1	Knife wound of leg	
2	Hernia		1	Bronchitis	
1	Progressive locomotor ataxia		1	Iritis	
3	Cancer	3	2	Herpes Zoster	
22	Intermittent fever	1	2	Ulcer of lower jaw	
2	Dyspepsia		1	Fracture thigh, comp.	
1	Injury to forearm		1	Attempted suicide	
3	Fracture of leg		3	Varicose ulcers	
1	Crushed finger		1	Amputation finger	
1	Sprained ankle		2	Amputation forearm	
1	Erysipelas		1	Amputation toes	
5	Asthma		1	Amputation leg	
2	Scalp wound		1	Glossitis	
1	Sprained leg		1	Gunshot wound	
2	Tertiary syphilis		1	Burns	
1	Insanity		1	Ptyalism	
2	Abscess		1	Tapeworm	
1	Spinal irritation		1	Impacted fracture, neck femur	
2	Tumor		1	Emphysema	
1	Stabbed shoulder		1	Fracture thigh and arm	
2	Cataract		28	General debility	4

Number of months reported	12	Discharged	145
Total on hand at commencement of year	75	Died	20
Total admitted	150	Percentage of deaths	7.05
Discharged cured	97	Remaining under treatment	60

That part of Placer County Hospital first built in 1858, is now in poor condition, and will soon be rebuilt. Most of our present hospital is in good condition, having been built by additions as needed. The location is unsurpassed in any county. Sewerage very good. Ventilation very good. Necessary supplies abundant. Medical attendance daily. Surface area to each patient at present time (we are crowded), six square feet. A hospital was first located on our present grounds in 1858. Water supply abundant. Fine spring water on hospital grounds.

Name and location of hospital: PLACER COUNTY HOSPITAL, Auburn, California.
Physician's name and Post Office address: T. M. TODD, M.D., Auburn, California.

REPORT TO THE STATE BOARD OF HEALTH OF THE INDIGENT SICK

Treated in the Placer County Hospital for the year ending February 29, 1885.

Total by each Disease	DISEASES.	No. Deaths by each Disease	Total by each Disease	DISEASES.	No. Deaths by each Disease
5	Abscess	----	16	Paralysis	3
3	Asthma	----	18	Pulmonary phthisis	4
19	Alcoholism	1	1	Pneumonia	----
5	Amputations	----	2	Locomotor ataxia	----
3	Blindness	----	2	Poison oak	----
4	Bright's disease	----	31	Rheumatism	----
2	Burns	----	8	Remittent fever	----
1	Bronchitis	----	2	Renal congestion	----
5	Cancer	1	2	Sprains	----
4	Cataract	----	2	Scalp wound	----
6	Dropsy	1	1	Spinal irritation	----
2	Dislocations	----	3	Tumors, stomach	----
2	Dyspepsia	----	1	Unhealed stump	----
2	Dementia	----	13	Ulcers	1
27	Debility	5	1	Diarrhœa, chronic	----
4	Epilepsy	1	8	Stricture urethra	2
2	Emphysema	----	5	Necrosis, tibia	----
2	Erysipelas	----	4	Syphilis	----
1	Encephalitis	----	1	Suicide	1
9	Fractures	----	1	Parotitis	----
2	Gastritis	----	1	Gangrene, foot	1
3	Gunshot wounds	1	6	Lacerated wounds	----
12	Heart disease	----	1	Cystitis	----
5	Hernia inguinal	----	1	Aneurism of aorta	----
1	Hydrocele	----	1	Retention of urine	----
2	Herpes Zoster	----	1	Onanism	----
29	Intermittent fever	----	1	Hæmoptysis	----
7	Railway injuries	----	1	Ophthalmia	----
1	Insanity	----	1	Opium habit	----
1	Impaction of colon	----	2	Hemorrhoids	----
4	Iritis	----	1	Sciatica	----
5	Knife wounds	----	1	Fissure of anus	----
1	Lumbago	----	1	Testicles, injury of	----
1	Ozœna	----			

Number of months reported	12	Discharged	224
Total on hand at commencement of year	60	Died	23
Total admitted	263	Percentage of deaths	7.24
Discharged cured	175	Remaining under treatment	76

No additions since last year's report. No changes of any kind.

Name and location of hospital: PLACER COUNTY HOSPITAL, Auburn, Placer County, California.

Physician's name and Post Office address: T. M. TODD, Auburn, Placer County, California.

REPORT TO THE STATE BOARD OF HEALTH OF THE INDIGENT SICK

Treated in the San Mateo County Hospital for the year ending December 31, 1884.

Total by each Disease	Diseases.	No. Deaths by each Disease	Total by each Disease	Diseases.	No. Deaths by each Disease
2	Consumption	2	1	Inguinal abscess	
3	Paralysis	1	4	Arthritic rheumatism	
1	Broken thigh		1	Injury of head	
1	Broken tibia		1	Eczema	
1	Mashed fingers		2	Delirium tremens	2
1	Chronic sciatica		1	Heart disease	1
1	Inguinal hernia		2	General debility	
2	Alcoholism	1	1	Gonorrhœa	
1	Chronic cough		1	Spinal injury	
3	Old age		1	Ophthalmia	
2	Dropsy		1	Tumor of hip	

Number of months reported	12	Discharged	20
Total on hand at commencement of year	27	Died	7
Total admitted	38,	Percentage of deaths	About 10 per cent.
Discharged cured	20	Remaining under treatment	38

The hospital is located on a farm of ninety acres, belonging to the county, situated in a small valley about five miles southwest of the town of San Mateo. It has been in operation about eight years. Sewerage, ventilation, and supplies good. The physician is required to visit it once a week, and oftener when needed, and make a quarterly report to Board of Supervisors, of those admitted, diseases, etc. The water is from a spring, good and ample for hospital purposes. The management is in the hands of a Superintendent, who is unusually well qualified for the position. Medicines are supplied by a wholesale house, and all ordinary prescriptions are put up by the Superintendent. I cannot now give the surface area to each patient, but the hospital is just now too much crowded, and the county will build an addition as soon as means can be provided. A large proportion of the inmates are decrepit old men.

Name and location of hospital: SAN MATEO COUNTY FARM AND HOSPITAL, San Mateo, San Mateo County, California.
Physician's name and Post Office address: L. D. MORSE, M.D., San Mateo, California.

REPORT TO THE STATE BOARD OF HEALTH OF THE INDIGENT SICK

Treated in the San Benito County Hospital for the term ending January 1, 1885.

Total by each Disease	Diseases.	No. Deaths by each Disease	Total by each Disease	Diseases.	No. Deaths by each Disease
2	Chronic rheumatism		1	Hypertrophy of prostate	
4	Acute rheumatism	1	1	Chronic hemorrhoids	
1	Mollitis cerebri	1	1	Morphia poison	
1	General debility		1	Wound in hand	
1	Injury in head		1	Cellulitis pelvic	
4	Phthisis	3	2	Dementia	1
4	Asthma		1	Varicose ulcer on leg	
2	Quick consumption	1	2	Fever and ague	
1	Constitutional syphilis		3	Chronic alcoholism	
1	Wound in abdomen		1	Fistula in rectum	
1	Gunshot wound	1			

Number of months reported	12	Discharged	10
Total on hand at commencement of year	23	Died	8
Total admitted	18	Remaining under treatment	3
Discharged cured	20		

This hospital is located near the business portion of the Town of Hollister, California, with but little convenience; is a combination hospital and poor (or county) house; sewerage and ventilation such as you would get in any small town close to the business portion, not of the best, nor yet of the worst. The hospital is let at so much per week (board) for each person. Medicines are furnished by contract, from drug store.

Name and location of hospital: San Benito County Hospital, Hollister, California.
Physician's name and Post Office address: E. G. Camplin, M.D., County Physician, Hollister, California.

REPORT TO THE STATE BOARD OF HEALTH OF THE INDIGENT SICK

Treated in the Fresno County Hospital for the year ending December 31, 1884.

Total by each Disease	Diseases.	No. Deaths by each Desease	Total by each Disease	Diseases.	No. Deaths by each Disease.
5	Acute diarrhœa		5	Chronic gastritis	
2	Chronic diarrhœa		1	Varicose ulcers	
1	Dysentery		3	Paralysis	2
4	Erysipelas		5	Chronic rheumatism	
1	Typhoid fever		10	Acute rheumatism	
13	Remittent and intermittent		1	Lead poison	
1	Cerebro-spinal		1	Dropsy	
5	Phthisis pulmonalis	2	4	Fractures	
2	Chronic alcoholism		1	Bright's disease	1
4	Pneumonia		2	Gunshot wounds	1
2	Acute bronchitis		4	Incised wounds	1
5	Chronic bronchitis	1	4	Railroad injuries	3
3	Pleurisy		1	Heart disease	
3	Secondary syphilis		4	Opium fiends	1
2	Tertiary syphilis		3	Nephritis	
1	Hip joint disease		5	Gastric fever	
1	Blind		3	Sprains and dislocations	

Number of months reported	12	Discharged	14
Total on hand at commencement of year	17	Died	12
Total admitted	112	Percentage of deaths	0.11
Discharged cured	65	Remaining under treatment	21

Please find all information respecting condition, location, sewerage, ventilation, supplies, medical attendance, surface area to each patient, length of time occupied, water supply, etc., in my report of December 31, 1878. There has been no change made since that time, and all is working well.

Name and location of hospital: Fresno County Hospital, Fresno County, California.
Physician's name and Post Office address: Lewis Leach, M.D., Fresno, Fresno County, California.

REPORT TO THE STATE BOARD OF HEALTH OF THE INDIGENT SICK

Treated in the Santa Cruz County Hospital for the year ending December 31, 1885.

Total by each Disease	DISEASES.	No. Deaths by each Disease.	Total by each Disease	DISEASES.	No. Deaths by each Disease.
3	Pregnancy	----	1	Dysentery	----
2	Bronchitis	----	4	Rheumatism	----
5	Consumption	2	2	Erysipelas	----
4	Heart disease	----	2	Conjunctivitis	----
5	Fractures	----	1	Pneumonia	----
1	Fractured vertebras	1	1	Neuralgia	----
16	Wounds and injuries	----	3	Intermittent fever	----
1	Dislocation	----	1	Hipjoint disease	----
10	Old age	----	1	Urethritis	----
4	Indigent miners	----	1	Epilepsy	----
2	Cripples	----	1	Synovitis	----
1	Delirium tremens	----	1	Lead poison	----
3	Alcoholism	----	1	Stricture of urethra	----
1	Asthma	----	1	Epistaxis	----
6	Paralysis	3	2	Poison oak	----
1	Syphilis	----	3	Skin disease	----
6	Debility	1	2	None given	----
4	Typhoid fever	1			

Number of months reported	12	Discharged	85
Total on hand at commencement of year	19	Died	8
Total admitted	84	Percentage of deaths	8
Discharged cured	None.	Remaining under treatment	18

Name and location of hospital: SANTA CRUZ COUNTY HOSPITAL, Santa Cruz, California.
Physician's name and Post Office address: BENJAMIN KNIGHT, M.D., County Physician, Santa Cruz, California.

REPORT TO THE STATE BOARD OF HEALTH OF THE INDIGENT SICK

Treated in the Fresno County Hospital, for the year ending December 31, 1885.

Total by each Disease	DISEASES.	No. Deaths by each Disease.	Total by each Disease	DISEASES.	No. Deaths by each Disease
1	Abscess, throat	----	7	Gastritis, chronic	----
1	Abscess, liver	----	5	Gunshot wounds	1
2	Bronchitis, acute	1	1	Hip joint disease	----
3	Bronchitis, chronic	1	1	Heart disease	1
3	Bright's disease	1	1	Hysteria	----
1	Brain, inflammation	1	1	Hernia, strangulated	----
1	Childbirth	----	3	Incised wounds	----
1	Carbuncle	----	2	Lung congestion	1
2	Cystitis	----	2	Neuralgia, facial	----
1	Diarrhœa, acute	----	2	Nasal catarrh	----
3	Diarrhœa, chronic	1	1	Opium fiend	1
1	Dislocation shoulder	----	3	Paralysis	1
3	Dropsy	----	1	Pleurisy, acute	----
1	Epilepsy	----	2	Pleurisy, chronic	----
1	Eye injury	----	5	Phthisis	1
1	Eczema	----	5	Pneumonia	----
47	Intermittent fever	----	3	Railroad injuries	3
3	Fever, typhoid	----	21	Rheumatism	----
4	Fever, continued	----	1	Spinal injury	1
4	Fracture, leg	----	4	Syphilis secondary	----
3	Fracture, arm	----	12	Syphilis, tertian	----
1	Fracture, scapula	----	6	Varicose ulcers	----
2	Gastritis, acute	----	1	Chronic alcoholism	----

Number of months reported	12	Discharged	19
Total on hand at commencement of year	21	Died	15
Total admitted	159	Percentage of deaths	8.33
Discharged cured	100	Remaining under treatment	25

For particulars regarding sewerage, ventilation, supplies, and medical attendance, see former report, as there has been no change made since 1876.

Name and location of hospital: FRESNO COUNTY HOSPITAL, Fresno County, California.
Physician's name and Post Office address: LEWIS LEACH, M.D., Fresno, Fresno County, California.

REPORT TO THE STATE BOARD OF HEALTH OF THE INDIGENT SICK

Treated in the Lassen Hospital for the year ending December 31, 1884.

Total by each Disease	DISEASES.	No. Deaths by each Disease
1	Heart	1

Number of months reported	9	Discharged	4
Total on hand at commencement of year	None.	Died	1
Total admitted	5	Percentage of deaths	0.5
Discharged cured	3	Remaining under treatment	None.

Lassen had no hospital until May, 1884, when quite a commodious building was mostly completed, one mile from Susanville, on Susan River, two stories high, with five rooms below and four above—not entirely finished, but are in process of completion—with a good cellar underneath. Abundance of water from the river in pipes; also a good well. The building is twenty-six by thirty-two feet, rooms ten feet high below, and nine above; a bath-room and other modern appliances for the convenience and comfort of the sick. The lands comprise one hundred and sixty acres of land, watered by Susan River, with a Government title, a portion of which is under cultivation, an orchard and garden, where patients can avail themselves of exercise if they choose, or go a fishing, if so disposed, in the river by the door.

Name and location of hospital: LASSEN HOSPITAL, Susanville, California.
Physician's name and Post Office address: Z. M. SPALDING, M.D., Susanville, Lassen County, California.

REPORT TO THE STATE BOARD OF HEALTH OF THE INDIGENT SICK

Treated in the San Diego County Hospital for the year ending December 31, 1885.

Total by each Disease	Diseases.	No. Deaths by each Disease	Total by each Disease	Diseases.	No. Deaths by each Disease
13	Phthisis pulmonalis	5	1	Ophthalmia, traumatic	----
4	Rheumatism (two chronic)	----	1	Cirrhosis of liver	1
1	Acute double pneumonia	1	1	Varicose veins of left leg	----
2	Chronic pneumonia	1	1	Lumbago	----
2	Chronic cystitis	1	1	Eczema, left leg	----
5	Syphilis (one secondary, two tertiary)	----	1	Rectal abscess	----
4	Bronchitis (two chronic)	1	1	Amputation of left middle finger, bitten by man	----
1	Softening of brain	1	1	Incised wound of ant. tibial artery	----
6	Hemiplegia (two right, with apasia)	1	1	Acute diarrhœa	----
2	Paraplegia, partial	----	1	Contused wound of left hip by a fall	----
2	Epilepsy	----	1	Endometritis	----
1	Chronic diarrhœa	----	1	Leucocythemia	----
1	Fracture of left tibia	----	1	Retention of urine, traumatic	----
1	Cerebral congestion	1	1	General debility	----
1	Locomotor ataxia	1	1	Hernia	----
2	Varicose ulcers of legs	----	1	Asthma	----
1	Orchitis, gonorrhœal	----			
1	Hepatitis	----			

Number of months reported	12	Discharged	7
Total on hand at commencement of year	16	Died	13
Total admitted	50	Percentage of deaths	5.07
Discharged cured	24	Remaining under treatment	12

Name and location of hospital: San Diego County Hospital, San Diego, California.

Physician's name and Post Office address: C. M. Fenn, M.D., Fifth Street, between F and G Streets, San Diego, California.

REPORT TO THE STATE BOARD OF HEALTH OF THE INDIGENT SICK

Treated in the San Luis Obispo County Hospital for the year ending December 31, 1884.

Total by each Disease	Diseases.	No. Deaths by each Disease	Total by each Disease	Diseases.	No. Deaths by each Disease
3	Typhoid fever	1	1	Epilepsy	----
2	Intermittent fever	----	1	Poison oak	----
2	Diarrhœa	----	1	Hemorrhoids	----
1	Dysentery	----	2	Varix	----
2	Dropsy (probably Bright's disease)	2	1	Paronychia	----
1	Jaundice	----	1	Fistula in ano	----
6	Bronchitis	----	3	Fracture leg	----
4	Phthisis	2	1	Fracture jaw	----
1	Asthma	----	1	Fracture skull	1
1	Collapse of lung	----	1	Dislocation of shoulder	----
1	Heart disease	----	1	Contusion of foot	----
5	Rheumatism	----	1	Contusion of abdomen	----
1	Cystitis	----	1	Contusion of side	----
1	Cirrhosis of liver	----	1	Contusion of stump	----
2	Paralysis	----	1	Sprain	----
1	Hemiplegia	----	1	Ulcer of leg	----
1	Sciatica	----	1	Ulcer of ankle	----
2	Dementia	----	1	Lacerated arm	----
2	Alcoholism	----	1	Stricture of urethra	----
			----	Suicide	1

Number of months reported	12	Discharged cured	48
Total on hand at commencement of year	10	Died	7
Total admitted	61	Remaining under treatment	16

Name and location of hospital: County Hospital, San Luis Obispo, California.
Physician's name and Post Office address: W. W. Hays, M.D., San Luis Obispo, California.

REPORT TO THE STATE BOARD OF HEALTH OF THE INDIGENT SICK

Treated in the Sierra County Hospital for the year ending January 1, 1885.

Total by each Disease	Diseases.	No. Deaths by each Disease.	Total by each Disease	Diseases.	No. Deaths by each Disease.
7	Old age	1	1	Cystitis	----
1	Traumatic paralysis	-----	1	Insanity	----
1	Anæmia	-----	3	General paralysis	1
1	Congenital deformity	-----	1	Ulcers on leg	----
3	Syphilis	-----	2	Fever, intermittent	----
2	Pain in head	-----	2	Inflammation of eyes	----
1	Fracture tibula and fibula	-----	1	Chronic diarrhœa	----
2	Sciatica	-----	1	Consumption	1
1	Asthma	-----	2	Ascites	1
12	Alcoholism	1	1	Amputation of finger	----
1	Hydrocele	-----	1	Abscess of lung	1
1	Onanism	-----	1	Cataract	----
4	Pneumonia	2	3	Fever, typhoid	1
1	Pharyngitis	-----	1	Bursa	----
5	Rheumatism	-----	1	Chronic nephritis	1
1	Pleuro-pneumonia	-----	1	Scalded foot	----
1	Hepatitis	-----			

Number of months reported	12	Discharged	38
Total on hand at commencement of year	22	Died	10
Total admitted	46	Remaining under treatment	20
Discharged cured	28		

Name and location of hospital: Sierra County Hospital, Downieville, California.
Physician's name and Post Office address: Alemby Jump, M.D., Downieville, California.

REPORT TO THE STATE BOARD OF HEALTH OF THE INDIGENT SICK

Treated in the Kern County Hospital for the year ending December 31, 1884.

Total by each Disease	Diseases.	No. Deaths by each Disease	Total by each Disease	Diseases.	No. Deaths by each Disease
32	Malarial fever	3	1	Typhoid fever	1
3	Paralysis	1	8	Quinsy	----
2	Erysipelas	-----	3	Shot different parts body	----
3	Consumption	1	2	Syphilis	----
4	Bronchitis	-----	1	General debility	----
1	Diabetes	-----	1	Compound fractures	----
3	Carbuncles	-----	2	Fistula	----
6	Pneumonia	2	1	Hemorrhage of the bowels	1
2	Ulcer	-----	2	Hemorrhage of the lungs	----
5	Fracture of the leg	-----	-----	Amputations of the leg	1
9	Rheumatism	----			

Number of months reported	12	Died	10
Total on hand at commencement of year	15	Percentage of deaths	10
Total admitted	199	Remaining under treatment	15
Discharged cured	160		

The Kern County Hospital is situated about a half mile from the town of Bakersfield; containing two wards, thirty by eighteen; each ward contains eight beds; three separate rooms containing two beds each; one office, one dining-room. Ventilation good. Receive water supply from Bakersfield Water Company. Medicine furnished by county. No contract system.

Name and location of hospital: KERN COUNTY HOSPITAL, Bakersfield, California.
Physician's name and Post Office address: DR. L. A. ROGERS, Bakersfield, California.

REPORT TO THE STATE BOARD OF HEALTH OF THE INDIGENT SICK

Treated in the Inyo County Hospital for the year ending January 31, 1885.

Total by each Disease	Diseases.	No. Deaths by each Disease	Total by each Disease	Diseases.	No. Deaths by each Disease
4	Surgical cases	-----	1	Paralysis	----
2	Chronic rheumatism	-----	1	Arthritis	----
1	Hernia	-----	2	Syphilis	----
2	Tuberculosis	-----	2	Periostitis	----
2	Lead colic	-----			

Number of months reported	9	Discharged	2
Total on hand at commencement of year	4	Died	None.
Total admitted	13	Percentage of deaths	None.
Discharged cured	7	Remaining under treatment	7

Name and location of hospital: INYO COUNTY HOSPITAL, Independence, California.
Physician's name and Post Office address: B. E. STEVENSON, M.D., Independence, California.

REPORT TO THE STATE BOARD OF HEALTH OF THE INDIGENT SICK

Treated in the Lake County Hospital for the year ending December 31, 1884.

Total by each Disease	Diseases.	No. Deaths by each Disease	Total by each Disease	Diseases.	No. Deaths by each Disease
10	Rheumatism	2	20	Consumption	10
1	Cancer	1	2	Amaurosis	----
11	Syphilis	2			

Number of months reported	12	Discharged	25
Total on hand at commencement of year	10	Died	15
Total admitted	34	Remaining under treatment	2
Discharged cured	10		

Lake County has no organized hospital. The cases noted above, nearly all of them, came in the county at a comparatively late date, seeking relief from chronic ailments at some one of the many mineral springs, in many instances reaching here without money; others, later becoming destitute, then cared for at public expense.

Name and location of hospital: LAKE COUNTY HOSPITAL, Lakeport.
Physician's name and Post Office address: H. J. CRUMPTON, M.D., Lakeport, California.

REPORT TO THE STATE BOARD OF HEALTH OF THE INDIGENT SICK

Treated in the Tuolumne County Hospital for the year ending March 5, 1885.

Total by each Disease	Diseases.	No. Deaths by each Disease	Total by each Disease	Diseases.	No. Deaths by each Disease
3	Asthma	----	12	Paralysis	2
3	Pneumonia	----	6	Phthisis pulm.	2
6	Rheumatism	----	4	Dysentery	----
1	Cancer	1	2	Anasarca	----
2	Syphilis	----	2	Ulcerated bowels	1
1	Varicose ulcer (leg)	----	1	Diabetes insip.	----
6	Malaria	----	2	Diabetes mellitus	----
2	Fractures	----	1	Bright's disease	----
2	Hydrocele	----	1	Cystitis	----
1	Pigment liver	1	1	Insanity	----
1	Aneurism aorta	1	2	Ophthalmia	----
2	Ecthyma	----	1	Softening of brain	----

Number of months reported	12	Discharged cured	30
Total on hand at commencement of year	32	Died	8
Total admitted	46	Remaining under treatment	40

Name and location of hospital: TUOLUMNE COUNTY HOSPITAL, Sonora, Tuolumne County, California.
Physician's name and Post Office address: W. E. EICHELROTH, M.D., Sonora, Tuolumne County, California.

REPORT OF DEATHS

For the Months of July, August, September, October, November, and December, 1884, of those Dying in different parts of the State of California.

Causes of Death.	Total	Sexes.			Ages.										Nativities.			
		Male	Female	Unascertained	Under 1 year	1 and under 5 years	5 and under 10 years	10 and under 20 years	20 and under 30 years	30 and under 40 years	40 and under 50 years	50 and under 60 years	60 and under 100 years	Unascertained	Pacific States	Atlantic States	Foreign Countries	Unascertained
I.—Zymotic or Epidemic.																		
Cholera	0																	
Cholera morbus	9	3	5	1	4				1	1	0	1	1	1	5	3	1	
Cholera infantum	81	43	29	9	65	16									77	2	2	
Diarrhœa	26	15	10	1	12				1	4	2	3	4		14	3	8	1
Dysentery	24	15	8	1	3	2	2			5	2	2	4	4	9	3	12	
Smallpox	1	1	0	0							1	0	0		0	0	1	
Measles	6	3	3		3	3									6	0	0	
Scarlatina	17	10	7		1	10	4	2							17			
Diphtheria	66	33	33		1	24	23	14	2	1	1				55	5	6	
Croup	28	11	17		5	10	10	3							27	1		
Influenza	0														0			
Whooping-cough	3	1	2		1	2									3			
Erysipelas	13	5	8		5	1	1		2	1	1	1		1	8	3	2	
Fevers—Typhus	8	6	2		1	1	1		1	2	2				2		6	
Typhoid	101	64	37			8	9	13	27	16	10	9	5	4	36	20	45	
Remittent and intermittent	24	16	6	2	1		1	5	4		6	2	1	4	6	6	11	1
Cerebro-spinal	32	19	13		13	9	2	2	2	1		1	2		24	6	2	
Syphilis	11	9	2		3				1	4	3				4	1	6	
Alcoholism (direct or remote), including delirium tremens	42	33	9						5	15	10	9	2	1	8	12	21	1
II.—Constitutional Diseases.																		
Hydrocephalus	23	12	11		11	8	2	2							20	3		
Meningitis	78	43	35		23	32	9		2	4	5		3		50	7	10	11
Phthisis pulmonalis	481	316	165		2	5	4	58	115	112	85	48	28	24	106	134	231	10
Marasmus	110	59	51		92	5	3		4	3		2		1	94	2	12	2
Scrofula	7	3	4		1			1	2	2	1				4		3	
Rheumatism	11	4	7						5			5	1		5		6	

Cancer	90	37	52	1	------	------	------	1	5	18	22	19	25	------	4	20	38	28
III.—Local Diseases.																		
Pneumonia	166	115	48	3	23	12	1	9	12	26	34	17	22	10	48	35	80	3
Pleurisy	5	5	------	------	------	------	------	------	2	------	1	1	------	1	------	1	3	1
Bronchitis	60	38	21	1	17	8	------	------	6	10	5	4	10	------	23	2	35	----
Other diseases of respiratory organs	62	46	16	------	6	4	------	------	9	11	18	5	7	2	15	5	42	----
Enteritis	55	34	21	------	31	9	1	1	------	2	4	1	6	------	37	1	16	1
Gastritis	22	12	10	------	1	1	1	3	5	3	4	------	4	------	5	2	15	----
Gastro-enteritis	10	4	6	------	5	1	0	1	1	------	1	------	1	------	6	0	4	----
Peritonitis (non-puerperal)	40	20	20	------	------	------	1	2	6	11	9	5	6	------	6	12	22	----
Diseases of the liver	53	32	21	------	------	0	1	0	4	15	11	7	11	4	10	6	37	----
Other diseases of stomach and bowels	30	19	11	------	13	1	1	1	3	------	6	5	------	------	13	9	8	----
Bright's disease and nephritis	71	48	21	2	1	------	------	2	10	16	16	10	15	1	16	22	31	2
Aneurism	8	7	1	------	------	------	------	1	2	1	1	2	1	------	------	2	6	----
Heart diseases	202	120	71	11	4	1	4	6	19	29	38	42	45	14	26	56	118	2
Convulsions	92	64	28	------	75	11	5	------	------	------	1	------	------	------	79	------	3	10
Other diseases of brain and nervous system	69	33	34	2	13	7	------	1	4	6	13	11	13	1	16	14	39	----
IV.—Developmental Diseases.																		
Puerperal diseases	25	------	25	------	------	------	------	------	14	11	------	------	------	------	5	7	13	----
Old age	58	27	31	------	------	------	------	------	------	------	------	1	57	------	4	14	37	3
V.—External Causes.																		
Suicide	44	25	5	14	------	------	2	1	7	8	11	6	8	1	3	7	23	11
Heat, death from—sunstroke	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	----
All other causes not classified	776	499	256	21	111	27	32	33	84	66	57	117	149	100	189	362	161	64
Stillbirths	141	60	62	19	------	------	------	------	------	------	------	------	------	------	141	------	------	----
Totals	3,281	1,969	1,224	88	547	218	120	162	367	404	381	336	433	172	1,216	798	1,116	151

REPORT OF DEATHS

For the months from June 30, 1884, to June 30, 1885, of those Dying in the State of California.

Causes of Death.	Total	Sexes.			Ages.										Nativities.			
		Male	Female	Unascertained	Under 1 year	1 and under 5 years	5 and under 10 years	10 and under 20 years	20 and under 30 years	30 and under 40 years	40 and under 50 years	50 and under 60 years	60 and under 100 years	Unascertained	Pacific States	Atlantic States	Foreign Countries	Unascertained
I.—Zymotic or Epidemic.																		
Cholera	0	0	0	0														
Cholera morbus	14	4	8	2	6				2	2		1	1	2	8	3	2	1
Cholera infantum	153	75	56	22	108	31		1					1	12	140	7	3	3
Diarrhœa	95	57	36	2	53	6	3		5	5	8	5	7	3	35	11	21	28
Dysentery	63	40	16	7	10	13	2	1	1	11	5	2	10	8	33	9	21	
Smallpox	1	1	0	0	0	0	0	0	0	0	1	0	0	0			1	
Measles	84	31	45	8	26	36	5			2	1		1	13	79	3	2	
Scarlatina	60	26	18	16	2	25	11	3						19	49			11
Diphtheria	265	131	118	16	9	112	103	24	3	3	1			10	208	13	34	10
Croup	136	61	69	6	18	58	29	6						25	113	3		20
Influenza	0	0	0	0														
Whooping-cough	23	19	4		12	7								4	20	1		2
Erysipelas	23	9	13	1	6	2	2		4	2	3	2	1	1	11	5	7	
Fevers—Typho-malarial	11	9	2		1	2	1		2	3	2				4	1	6	
Typhoid	222	119	89	14		13	15	44	56	34	18	18	10	14	85	40	91	6
Remittent and intermittent	60	32	20	8	3	6	3	7	13	7	10	4	1	6	19	19	19	3
Cerebro-spinal	73	40	27	6	24	16	6	7	7	2	2	1	4	4	52	12	6	3
Syphilis	17	15	2		4				2	5	6				7	3	7	
Alcoholism (direct or remote), including delirium tremens	111	73	27	11					12	24	34	18	12	11	25	29	55	2
II.—Constitutional Diseases.																		
Hydrocephalus	44	28	16		17	19	4	3			1				39	4	1	
Meningitis	214	110	99	5	53	68	26	7	9	9	7	5	6	14	143	15	23	33
Phthisis pulmonalis	1,227	718	424	85	8	12	12	103	270	304	201	117	81	119	254	363	564	46
Marasmus	269	145	121	3	193	29	8	2	10	7	3	5	8	4	217	10	33	9
Scrofula	12	7	5		1	1	1	2	2	3	2				7	1	4	
Rheumatism	20	10	10			1	1		6	2	1	7	2		8	3	9	

Cancer	208	102	98	8	------	------	------	1	11	28	50	55	57	6	11	53	113	31
III.—LOCAL DISEASES.																		
Pneumonia	552	337	183	32	76	72	36	22	44	58	75	51	72	46	226	113	196	17
Pleurisy	17	15	2	------	1	------	1	------	4	2	4	1	3	1	2	5	9	1
Bronchitis	181	104	73	4	45	37	4	2	13	17	11	10	34	8	90	14	76	1
Other diseases of respiratory organs	154	106	43	5	24	13	2	4	16	20	33	16	15	11	40	26	81	7
Enteritis	135	72	63	------	70	15	2	7	3	8	9	10	11	------	88	9	37	1
Gastritis	36	19	17	------	1	1	1	5	8	5	9	2	4	------	5	6	25	----
Gastro-enteritis	22	10	10	2	7	1	------	2	2	4	2	2	2	------	9	3	9	1
Peritonitis (non-puerperal)	73	33	37	3	------	1	2	5	17	15	12	9	9	3	16	20	36	1
Diseases of the liver	120	75	45	------	2	------	1	1	8	27	32	20	25	4	18	24	77	1
Other diseases of stomach and bowels	49	32	16	1	15	1	1	2	5	1	10	6	7	1	20	13	15	1
Bright's disease and nephritis	140	92	44	4	4	2	1	5	22	22	32	21	30	1	28	43	65	4
Aneurism	23	19	4	------	------	------	------	1	2	6	4	8	2	------	------	7	16	----
Heart diseases	486	290	168	28	6	1	6	23	42	53	110	92	116	37	66	156	251	13
Convulsions	211	127	80	4	160	39	8	------	------	------	1	1	1	1	191	3	4	13
Other diseases of the brain and nervous system	142	75	64	3	21	13	2	4	9	13	24	19	29	5	37	29	71	5
IV.—DEVELOPMENTAL DISEASES.																		
Puerperal diseases	38	------	38	------	------	------	------	1	21	15	1	------	------	------	6	14	18	----
Old age	140	82	52	6	------	------	------	------	------	------	------	1	137	2	9	47	75	9
V.—EXTERNAL CAUSES.																		
Suicide	107	77	16	14	------	------	2	1	22	24	24	17	11	6	4	21	66	16
Heat, death from—sunstroke	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	----
All other causes not classified	1,913	1,172	591	150	228	56	52	72	184	122	168	241	321	469	526	596	645	146
Stillbirths	294	142	133	19	------	------	------	------	------	------	------	------	------	------	294	------	------	----
Totals	8,238	4,741	3,002	495	1,217	709	355	368	836	865	917	768	1,043	868	3,242	1,757	2,794	445

REPORT OF DEATHS

From January 1 to June 30, 1885, of those Dying in the State of California.

Causes of Death.	Total	Sexes.			Ages.										Nativities.			
		Male	Female	Unascertained	Under 1 year	1 and under 5 years	5 and under 10 years	10 and under 20 years	20 and under 30 years	30 and under 40 years	40 and under 50 years	50 and under 60 years	60 and under 100 years	Unascertained	Pacific States	Atlantic States	Foreign Countries	Unascertained
I.—Zymotic or Epidemic.																		
Cholera	0	0	0	0														
Cholera morbus	5	1	3	1	2				1	1				1	3		1	1
Cholera infantum	72	32	27	13	44	16								12	63	5	1	3
Diarrhœa	69	42	26	1	41	6	3		4	1	6	2	3	3	21	8	13	27
Dysentery	39	25	9	5	7	11		1	1	6	3		6	4	24	6	9	
Smallpox	0	0	0	0	0	0	0											
Measles	78	28	42	8	23	33	5			2	1		1	13	73	3	2	
Scarlatina	43	16	11	16	1	15	7	1						19	32	0	0	11
Diphtheria	199	98	85	16	8	88	80	10	1	2				10	153	8	28	10
Croup	108	50	52	6	13	48	19	3						25	86	2		20
Influenza	0	0	0	0														
Whooping-cough	20	8	6	6	11	5								4	17	1		2
Erysipelas	10	4	5	1	1	1	1		2	1	2	1	1		4	5	1	
Fevers—Typho-malarial	3	3	0	0		1			1	1					2	1		
Typhoid	121	55	52	14		5	6	31	29	18	8	9	5	10	49	20	46	6
Remittent and intermittent	36	16	14	6	2	6	2	2	9	7	4	2		2	13	13	8	2
Cerebro-spinal	41	21	14	6	11	7	4	5	5	1	2		2	4	28	6	6	1
Syphilis	6	6	0	0	1				1	1	3				3	2	1	
Alcoholism (direct or remote), including delirium tremens	69	40	18	11					7	9	24	9	10	10	17	17	34	1
II.—Constitutional Diseases.																		
Hydrocephalus	21	16	5		6	11	2	1			1				19	1	1	
Tubercular meningitis	136	67	64	5	30	36	17	7	7	5	2	5	3	14	93	8	13	22
Phthisis pulmonalis	746	402	259	85	6	7	8	45	155	192	116	69	53	95	148	229	333	36
Marasmus	159	86	70	3	101	24	5	2	6	4	3	3	8	3	123	8	21	7
Scrofula	5	4	1			1	1	1		1	1				3	1	1	
Rheumatism	9	6	3			1	1		1	2	1	2	1		3	3	3	

Cancer	118	65	46	7	-----	-----	-----	-----	6	10	28	36	32	6	7	33	75	3
III.—Local Diseases.																		
Pneumonia	386	222	135	29	53	60	35	13	32	32	41	34	50	36	178	78	116	14
Pleurisy	12	10	2	-----	1	-----	1	-----	2	2	3	-----	3	-----	2	4	6	----
Bronchitis	121	66	52	3	28	29	4	2	7	7	6	6	24	8	67	12	41	1
Other diseases of the respiratory organs	92	60	27	5	18	9	2	4	7	9	15	11	8	9	25	21	39	7
Enteritis	80	38	42	-----	39	6	1	6	3	6	5	9	5	-----	51	8	21	----
Gastritis	14	7	7	-----	-----	-----	-----	2	3	2	5	2	-----	-----	-----	4	10	----
Gastro-enteritis	12	6	4	2	2	-----	-----	1	1	4	1	2	1	-----	3	3	5	1
Peritonitis (non-puerperal)	33	13	17	3	-----	1	1	3	11	4	3	4	3	3	10	8	14	1
Diseases of the liver	67	43	24	-----	2	-----	-----	1	4	12	21	13	14	-----	8	18	40	1
Other diseases of stomach and bowels	19	13	5	1	2	-----	-----	1	2	1	4	1	7	1	7	4	7	1
Bright's disease and nephritis	69	44	23	2	3	2	1	3	12	6	16	11	15	-----	12	21	34	2
Aneurism	15	12	3	-----	-----	-----	-----	-----	-----	5	3	6	1	-----	-----	5	10	----
Heart diseases	284	170	97	17	2	-----	2	17	23	24	72	50	71	23	40	100	133	11
Convulsions	119	63	52	4	85	28	3	-----	-----	-----	-----	1	1	1	112	3	1	3
Other diseases of brain and nervous system	73	42	30	1	11	6	2	3	5	7	11	8	16	4	21	15	32	5
IV.—Developmental Diseases.																		
Puerperal diseases	13	-----	13	-----	-----	-----	-----	1	7	4	1	-----	-----	-----	1	7	5	----
Old age	82	55	21	6	-----	-----	-----	-----	-----	-----	-----	-----	80	2	5	33	38	6
V.—External Causes.																		
Suicide	63	52	11	-----	-----	-----	-----	-----	15	16	13	11	3	5	1	14	43	5
Heat, death from—sunstroke	0	0	0	0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	----
All other causes not classified	1,137	673	335	129	117	29	20	39	100	56	111	124	172	369	337	234	484	82
Stillbirths	153	82	71	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	----
Totals	4,957	2,762	1,783	412	670	491	233	206	469	461	536	432	610	696	2,027	962	1,676	292

REPORT OF DEATHS

For the months from June 30, 1885, to June 30, 1886, of those Dying in the State of California.

Causes of Death.	Total	Sexes.			Ages.										Nativities.			
		Male	Female	Unascertained	Under 1 year	1 and under 5 years	5 and under 10 years	10 and under 20 years	20 and under 30 years	30 and under 40 years	40 and under 50 years	50 and under 60 years	60 and under 100 years	Unascertained	Pacific States	Atlantic States	Foreign Countries	Unascertained
I.—Zymotic or Epidemic.																		
Cholera	0	0	0	0	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Cholera morbus	18	8	7	3	2	2	3	------	------	1	3	1	1	5	8	3	4	3
Cholera infantum	169	81	76	12	131	26	2	------	------	------	------	------	------	10	162	1	------	6
Diarrhœa	77	46	27	4	49	7	3	1	------	------	3	2	7	5	44	7	9	17
Dysentery	39	25	13	1	10	3	1	1	3	3	3	5	7	3	15	4	19	1
Smallpox	0	0	0	0	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Measles	31	11	16	4	8	12	1	1	2	1	2	1	------	3	26	2	2	1
Scarlatina	65	21	20	24	11	26	14	7	------	------	------	------	------	7	48	2	------	15
Diphtheria	374	185	168	21	15	152	123	42	7	------	------	2	3	30	314	25	15	20
Croup	166	90	63	13	20	87	30	5	1	------	------	------	1	22	149	6	6	5
Influenza	2	1	1	------	------	------	------	------	------	------	------	------	2	------	------	------	2	------
Whooping-cough	47	21	23	3	31	95	1	1	------	------	------	------	------	5	45	------	------	2
Erysipelas	22	15	6	1	3	1	1	------	2	3	2	7	3	------	5	13	4	------
Fevers—Typho-malarial	32	12	6	14	3	4	4	6	1	1	4	4	2	3	13	8	4	7
Typhoid	225	125	78	22	1	14	19	39	56	25	21	17	14	19	82	51	67	25
Remittent and intermittent	46	21	23	2	5	3	7	6	3	2	5	2	10	3	23	13	10	------
Cerebro-spinal	96	37	38	21	31	17	11	6	5	3	2	2	6	13	64	9	7	16
Syphilis	14	8	6	------	3	0	0	1	2	------	5	1	2	------	4	4	6	------
Alcoholism (direct or remote), including delirium tremens	113	70	33	10	1	------	------	2	8	19	32	26	19	6	7	35	61	10
II.—Constitutional Diseases.																		
Hydrocephalus	53	34	17	2	22	22	7	1	1	------	------	------	------	------	47	4	2	------
Tubercular meningitis	224	117	94	13	65	66	24	6	9	16	18	7	8	5	155	25	28	16
Phthisis pulmonalis	1,540	871	492	177	9	14	9	126	415	291	267	165	113	131	303	427	597	213
Marasmus	303	170	132	1	197	21	3	4	7	15	9	15	28	4	197	20	54	32
Scrofula	9	8	1	------	3	------	------	2	1	1	------	1	1	------	4	1	3	1
Rheumatism	22	13	8	1	------	------	------	2	1	------	1	8	10	------	2	7	12	1

Cancer	298	117	160	21		1	1	1	10	31	98	88	54	14	25	92	163	18
III.—LOCAL DISEASES.																		
Pneumonia	604	359	210	35	106	91	8	28	56	68	64	62	92	29	257	107	208	32
Pleurisy	16	11	5				1		6	1	4	1	3		3	5	8	
Bronchitis	194	108	74	12	64	7	3	4	12	9	15	21	33	26	96	25	65	8
Other diseases of respiratory organs	115	71	36	8	21	18	4	11	3	17	15	5	13	8	50	25	23	17
Enteritis	163	89	72	2	99	17	1	8	8	5	10	8	6	1	113	14	30	6
Gastritis	70	34	25	11	14	5	2	1	7	8	11	8	8	6	22	11	25	12
Gastro-enteritis	14	6	8		3	3	2	1	1	1	1	1		1	1	7	4	2
Peritonitis (non-puerperal)	87	44	40	3	8	6	1	3	20	20	12	8	7	2	27	21	34	5
Diseases of the liver	147	102	41	4	1	1		2	10	24	40	31	35	3	12	25	101	9
Other diseases of stomach and bowels	47	25	17	5	7	4	2	2	5	5	6	8	6	2	13	18	13	3
Bright's disease and nephritis	134	85	43	6	1	3	2	6	12	17	31	24	35	3	15	45	63	11
Aneurism	28	23	3	2					1	4	11	10	1	1	2	2	23	1
Heart diseases	547	329	195	23	4	4	9	18	44	64	110	101	176	27	82	163	269	33
Convulsions	246	126	114	6	154	67	5		2	2	3	3	4	6	226			20
Other diseases of brain and nervous system	165	112	49	4	29	10	8	7	11	10	19	26	40	5	49	49	67	
IV.—DEVELOPMENTAL DISEASES.																		
Puerperal diseases	41		41				1	1	15	13	8			3	12	10	11	8
Old age	192	78	96	18									192		5	70	78	39
V.—EXTERNAL CAUSES.																		
Suicide	135	108	20	7				5	23	32	23	25	17	10	9	33	75	18
Heat, death from—sunstroke	1	1												1			1	
All other causes not classified	2,545	1,608	696	241	296	103	51	89	228	283	300	305	414	476	708	474	1,060	303
Stillbirths	266	176	80	10											266			
Totals	9,742	5,602	3,373	767	1,427	827	364	446	1,003	995	1,153	1,001	1,372	888	3,720	1,863	3,233	936

TABLE No. 1.

Number of Deaths, arranged according to Sexes, Months, and Ages, from June 30, 1884, to June 30, 1885

Localities	Total	Sexes			Months												Ages										Number of Months Reported	Names of Correspondents
		Male	Female	Unknown	July	August	September	October	November	December	January	February	March	April	May	June	Under 1 year	1 to 5 years	5 to 10 years	10 to 20 years	20 to 30 years	30 to 40 years	40 to 50 years	50 to 60 years	60 to 100 years	Unknown		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Dr T H Mayen
Angels Camp	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Dr E L S Baker
Anderson	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Dr S C Gibson
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Dr C H Gibbons
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Dr Samuel McCurdy
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Dr B J Rooney
Bakersfield	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Dr C A Rogers
Bartlett Springs	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Dr E C Rhodes
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Dr A Newmark
Berkeley	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Dr F H Payne
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Dr O C Hawkins
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Dr D Walker
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Dr J H Johnson
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Dr J Parker
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Dr J C Mason
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Dr J O Smith
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Dr J W Robertson
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Dr A Trafton
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Dr A F Hertel
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Dr N B Coffman
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Dr J B Robertson
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Dr W S Taylor
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Dr J S Baker
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Dr W T Bell
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Dr A Westfall
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1007	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Dr W S Thorne
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Totals	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	

TABLE No. 2

Number of Deaths from all causes, with the Sexes, Months, Ages and Nativities, [illegible] 188[illegible] to June 30 188[illegible]

Diseases

I. Zymotic Diseases

[illegible]

II. Constitutional Diseases

[illegible]

III. Local Diseases

[illegible]

IV. Developmental Diseases

[illegible]

V. [illegible]

[illegible]

Total [illegible]

TABLE No. 3.

Number of Deaths, arranged according to Sexes, Months, and Ages, from June 30, 1885, to June 30, 1886.

Localities	Totals	Sexes			Months												Ages										Number of Months Reported	Names of Correspondents
		Male	Female	Unknown	July	August	September	October	November	December	January	February	March	April	May	June	Under 1 year	1 to 5 years	5 to 10 years	10 to 20 years	20 to 30 years	30 to 40 years	40 to 50 years	50 to 60 years	60 to 100 years	Unascertained		

TABLE No. 4

Number of Deaths from all causes, with the Sexes, Months, Ages, and Nativities, from June 30, 1885, to June 30, 1886.

Diseases	Total	Sexes			Months												Ages										Nativities			
		Male	Female	Unascertained	July	August	September	October	November	December	January	February	March	April	May	June	Under 1 year	1 to 5 years	5 to 10 years	10 to 20 years	20 to 30 years	30 to 40 years	40 to 50 years	50 to 60 years	60 to 100 years	Unascertained	Pacific States	Atlantic States	Foreign	Unascertained
I. ZYMOTIC OR EPIDEMIC.																														
Cholera																														
[illegible]	18	5	7	5		1	1	5	1	0		0		1	3	3	2	2	3		....	1	1	1	1	[illegible]	8	4	4	3
Cholera infantum	[illegible]	81	76	12	[illegible]	31	23	30	13	5	6	6	1	[illegible]	8	31	131	2	[illegible]		....					[illegible]	[illegible]	1		6
Diarrhœa	77	46	27	4	[illegible]	6	8	13	11	[illegible]	7	[illegible]	1	3	[illegible]	5	19	7	3	1			3	2	[illegible]	[illegible]	13	7	9	17
Dysentery	[illegible]	[illegible]	13	1	[illegible]	3	8	[illegible]	3	2	2	[illegible]	[illegible]	1	3	2	10	1	1	1	[illegible]	3	1	5	7	3	[illegible]	4	19	1
Small-pox																														
Measles	41	11	16	4	10	4	3	1	1		2	2	2		2	4	8	12	1	1	2	1	2	1		4	26	2	2	1
Scarlatina	[illegible]	21	20	21	[illegible]	1	2	[illegible]		14	11	[illegible]	[illegible]		7	[illegible]	11	[illegible]	14	7		...		.....		[illegible]	48	2		15
Diphtheria	[illegible]	185	168	21	[illegible]	35	24	31	37	[illegible]	47	27	19	[illegible]	31	18	5	[illegible]	123	12	-		.....	2	3	[illegible]	314	25	15	20
Croup	[illegible]	[illegible]	63	15	15	[illegible]	11	15	19	[illegible]	20	11	[illegible]	[illegible]	13	[illegible]	[illegible]	[illegible]	[illegible]		1			..	1	22	141	6	6	5
Influenza	2	1	1										1	..	1	...		...	...		....	..		..	2				2	...
Whooping-cough	47	21	23	3	[illegible]	1	1	1	[illegible]	6	2	1	[illegible]	[illegible]	16	3	41	[illegible]	1	1				..	..		[illegible]			2
Erysipelas	[illegible]	15	6	1	1	2	4	2	1	2	2	....		1	1	1	1	1	1	....	2	3	2	7	3			15	4	
Fevers: Typho-malarial	[illegible]	[illegible]	6	14	3	8	...	10		1	1	1	2		1		1		1	4	6	1	1	1	1	2	13	8	4	7
Typhoid	[illegible]	[illegible]	78	22	15	20	4	38	22	12	14	16	13	17	14	[illegible]	1	11	19	9	[illegible]	[illegible]	21	17	14	[illegible]	82	[illegible]	[illegible]	25
Remittent and Intermittent	[illegible]	21	23	2	[illegible]	3	[illegible]	4	4	[illegible]	3	1	[illegible]		6	[illegible]	[illegible]	1	7	6	4	[illegible]	[illegible]	2	10		[illegible]	13	10	
Cerebro-spinal	[illegible]	37	38	21	7	[illegible]	5	4	4	10	7	5	9	12	16	5	31	17	11	6	[illegible]	3	2	2	[illegible]	13	61	9	7	15
Syphilis	11	8	[illegible]		1	[illegible]	1	1	1		1		1		1	1			...	1	2	..		1	2	...	1	4	[illegible]	
[illegible]	[illegible]	[illegible]	34	10	7	8	11	9	16	13	12	7	7	7	7	6	1	...	...	...	2	8	14	32	26	13	6	7	45	61	10
II. CONSTITUTIONAL DISEASES.																														
Hydrocephalus	53	[illegible]	17	[illegible]	2	[illegible]	[illegible]	2		[illegible]	6	8	[illegible]	4	3	8	[illegible]	22	[illegible]	1	1	...	..	....		-	47	4	2	
[illegible]	221	117	91	1	[illegible]		[illegible]	[illegible]	[illegible]	19	20	14	18	[illegible]	21	17	[illegible]	[illegible]	24	6	9	[illegible]	18	[illegible]	8	[illegible]	155	[illegible]	[illegible]	16
Phthisis pulmonalis	[illegible]	871	[illegible]	177	110	[illegible]	92	123	1	[illegible]	1	[illegible]	150	132	[illegible]	[illegible]	9	14	9	[illegible]	415	[illegible]	[illegible]	[illegible]	113	131	303	[illegible]	[illegible]	[illegible]
Marasmus	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	18	28	[illegible]	21	[illegible]	21	[illegible]	[illegible]	21	3	[illegible]	7	[illegible]	9	15	28	4	107	20	[illegible]	32
[illegible]	[illegible]	8	1		1	2	[illegible]	[illegible]	[illegible]	3	1			[illegible]	[illegible]	1	3			[illegible]	1	1	..	1	1	..	4	1	[illegible]	1
[illegible]	[illegible]	[illegible]	8	1	4	2	1	[illegible]	[illegible]	[illegible]	1	2	[illegible]	2	[illegible]	2	..		[illegible]	2	1		1	8	10	.....	2	[illegible]	[illegible]	1
Cancer	258	137	[illegible]	[illegible]	19	[illegible]	[illegible]	[illegible]	[illegible]	31	[illegible]	1	[illegible]	[illegible]	[illegible]	20	...	1	1	1	10	31	[illegible]	[illegible]	[illegible]	14	[illegible]	92	[illegible]	18
III. LOCAL DISEASES.																														
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	15	28	[illegible]	[illegible]	100	[illegible]	[illegible]	15	44	28	[illegible]	[illegible]	8	28	[illegible]	[illegible]	[illegible]	62	92	24	[illegible]	[illegible]	[illegible]	52
[illegible]	[illegible]	11				1	2	2	1	1	3	1	1	1	...	..	...	..	1	...	[illegible]	1	1	1	3		3	[illegible]	8	..
[illegible]	[illegible]	108	71	12	[illegible]	10	13	11	18	23	32	[illegible]	17	16	15	6	64	7	3	4	2	9	15	21	[illegible]	[illegible]	[illegible]	25	[illegible]	8
[illegible] respiratory organs	[illegible]	71	[illegible]	8	7	[illegible]	8	13	11	12	[illegible]	7	11	[illegible]	[illegible]	7	21	18	4	11	[illegible]	17	[illegible]	[illegible]	[illegible]	8	[illegible]	[illegible]	23	17
[illegible]	[illegible]	[illegible]	72	[illegible]	24	7	2	11	15	18	[illegible]	[illegible]	11		11	2	[illegible]	17	1	8	8	[illegible]	10	8	[illegible]	1	113	[illegible]	[illegible]	[illegible]
[illegible]	70	[illegible]	25	11	[illegible]	8	8	8	[illegible]	[illegible]	2	5	[illegible]	8	[illegible]	5	14	[illegible]	2	1	[illegible]	8	11	8	8	6	[illegible]	11	[illegible]	12
[illegible]	11	[illegible]	8			[illegible]	1		[illegible]	1	1	2				2	[illegible]	3		1	1	1	1	1		1	1	7	4	2
[illegible]	[illegible]	[illegible]	[illegible]		4	11	[illegible]	10	7	7	3	3	8	1	6	15	8	[illegible]	1	4	20	20	12	8	7	2	27	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	1	16	8	[illegible]	[illegible]	[illegible]	22	15	15	11	11	15	[illegible]	1	1	[illegible]	2	[illegible]	[illegible]	4	41	[illegible]	[illegible]	12	[illegible]	101	[illegible]
Other diseases of [illegible] bowels	[illegible]	[illegible]	17	[illegible]	5	[illegible]	1	[illegible]	1	2	4	2	1	1	1	[illegible]	[illegible]	1	2	2	[illegible]	[illegible]	6	8	6	2	13	18	13	3
[illegible]	[illegible]	[illegible]	[illegible]	6	7	10	1	1	[illegible]	10	9	11	1	8	11	18	1		2	6	12	17	41	21	[illegible]	3	15	[illegible]	[illegible]	11
[illegible]	[illegible]	[illegible]	[illegible]	2	......	5	1	[illegible]		[illegible]	2	2	[illegible]	[illegible]	3	3					1	1	11	10	1	1	[illegible]	2	[illegible]	1
[illegible]	[illegible]	[illegible]	[illegible]	23	[illegible]	[illegible]	[illegible]	10	18	[illegible]	[illegible]	4	10	[illegible]	[illegible]	[illegible]	4	[illegible]	9	18	44	64	[illegible]	[illegible]	17	27	[illegible]	[illegible]	[illegible]	33
Convulsions	[illegible]	[illegible]	114		22	23	[illegible]	14	[illegible]	21	[illegible]	11	[illegible]	[illegible]	21	18	[illegible]	[illegible]	[illegible]	.....	[illegible]	[illegible]	3	3	4	6	[illegible]			20
[illegible] system	[illegible]	112	[illegible]	1	[illegible]	7	[illegible]	[illegible]	31	17	[illegible]	[illegible]	[illegible]	12	5	9	[illegible]	10	8	7	11	1	[illegible]	[illegible]	[illegible]	5	[illegible]	[illegible]	[illegible]	
IV. DEVELOPMENTAL DISEASES.																														
[illegible]	[illegible]		[illegible]		[illegible]	[illegible]	5	3	2	1	[illegible]	2	[illegible]	3	[illegible]	2	...		1	1	[illegible]	[illegible]	8	..	...	3	12	10	11	8
[illegible]	[illegible]	[illegible]	[illegible]	18	[illegible]	12	12	[illegible]	[illegible]	[illegible]	21	11	[illegible]	21	[illegible]	11						..	....		[illegible]	..	5	[illegible]	[illegible]	[illegible]
V. EXTERNAL CAUSES.																														
[illegible]	[illegible]	[illegible]	[illegible]	7	12	14	9	10	[illegible]	[illegible]	8	12	[illegible]	[illegible]	18	[illegible]		....	...	5	[illegible]	[illegible]	28	[illegible]	17	[illegible]	[illegible]	[illegible]	[illegible]	18
[illegible]	1	1			0	0	0	0	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1		...		...			...						1	..
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	74	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	114	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	10	28	[illegible]	30	27	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2	[illegible]	20											[illegible]			
Total	9,742	[illegible]	[illegible]	[illegible]	776	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

APPENDIX.

The Board of Health, while generally approving the papers presented in this report, are not responsible for the particular sentiments expressed.

BOARD OF HEALTH.

APPENDIX.

The Board of Health, while generally approving the papers presented in this report, are not responsible for the particular sentiments expressed.

BOARD OF HEALTH.

THE CLIMATOLOGY AND DISEASES OF SOUTHERN CALIFORNIA.

By H. S. Orme, M.D., President State Board of Health.

TOPOGRAPHY.

The territory to which this inquiry is restricted embraces the Counties of Santa Barbara, Ventura, Los Angeles, San Bernardino, and San Diego.

It comprises an irregular outline extending about from latitude 32° 30′ to 35° 40′ and from longitude 37° to 43° 40′. In the direction of the parallels its extreme width is three hundred and thirty miles, and its extreme length two hundred and thirty miles. Its coast line, following the indentations, measures about three hundred and thirty miles.

Four of the five counties have a wide exposure to the sea; and but one of the five, viz.: San Bernardino, is entirely inland. Two thirds of the coast line of Santa Barbara County, and about one half of that of Los Angeles County, presents a southerly exposure. The remaining portion of the entire coast line faces westerly or southwesterly. Between the most easterly point on the coast and the most westerly there is a distance of two hundred and fifteen miles.

The western part of this region is traversed by low ranges of mountains, having an average altitude of from three thousand five hundred to six thousand feet. A few of the higher peaks exceed seven thousand feet in altitude; the culminating peak, Mount San Bernardino, reaches to a height of eleven thousand eight hundred feet above the sea level. These mountain ranges inclose a number of small but fertile valleys, a few of which are settled. All of them are capable of supporting a population of moderate density.

The eastern portion consists of an arid and tolerable level tract, usually called the Mohave Desert. A small portion of this in the extreme southern part of the State is known as the Colorado Desert. It is separated from the former by a few isolated ridges which form the southern remnant of the San Bernardino Mountains. The western part of this arid region has an altitude of two thousand feet, the central and eastern parts are much lower, and in several places are below the sea level. Two of these depressions, Death Valley, and the sink of the San Felipe River, are about four hundred feet below the sea.

The lowest point on the Southern Pacific Railroad through the Colorado Desert is twenty-six miles east of Indio, or five miles west of Dos Palmas; this is two hundred and sixty-six feet below the sea level. From this point the ground falls off south, until reaching a point half a mile distant, the level bottom of the desert in the form of a salt bed is found; this is two hundred and eighty feet below the sea. This is where the "New Liverpool" salt company are operating, and have their works.

But by far the most important part of Southern California is the western slope of the Coast Range of mountains, which, from a narrow strip in the north, widens to a broad plain n the south.

Its area is materially increased also by the valleys of numerous short rivers which traverse the mountain ranges, and flow towards the ocean. This region is possessed of wonderful fertility, and is capable of supporting a denser population than any other part of California. The conditions of soil and climate are such, that it will produce almost any crop that can be grown between the latitudes of Lake Manitoba and Key West.

It is this region which we shall chiefly consider in speaking of Southern California. Its hoard of grain already contributes to feed the overcrowded population of London; its preserved fruits are sold in the cities of Southern Italy.

SOIL.

There are many varieties of soil to be found in the southern counties of California. These in their bearing upon the climate of the region may be classified with respect to their retentiveness of moisture. The non-retentive soil includes the red and blue clays, of which there are but little, and the well known *adobe*. The latter is more or less abundant, occurring in irregular patches from a few acres to several square miles in extent.

The retentive soils comprise the gravelly loams, the micaceous sediments, and the so called sand bottoms along the river courses. This classification may seem at first paradoxical, but facts are stronger than theory, for while the wet and boggy clay and adobe bakes under a semi-tropical sun into a friable and *perfectly dry mass*, the sands and more porous soils are *moist* throughout the year. This peculiarity, which is due to capillarity, is not only an important element in insuring great productivity to the soil, but it also exerts a decided effect in moderating the severity of the Summer's heat. The soil of the eastern part, or the arid region, and also the detritus brought down by the rivers during the Winter floods, is commonly called "sand." Of true sand, however, there is not a particle, excepting along the coast. The alleged "sand" is nothing more than disintegrated granite rock, rich in feldspar, and containing a notable quantity of mineral phosphates.

This is the secret of the wonderful productiveness of the soil wherever watered; it is also a most important factor in determining the fine quality of the fruit and vintage, for which Southern California has already a world-wide reputation.

HUMIDITY.

Under this head we will consider the annual rainfall, and independently the amount of moisture present in the atmosphere. A knowledge of the total rainfall of a region gives but little insight as to its climatic conditions; the distribution of the rainfall reveals much. In Southern California, as on the Pacific Coast generally, the rainfall occurs almost wholly during the Winter months. A few scattering showers occur in November and December; heavier rains fall during the following three months, especially during February and March. There are occasional rains in April, and rarely in May. In the mountains, however, there are at times heavy mists, and even dashes of rain.

The average rainfall of the southern part of the State may be seen from the following table. Of the five stations mentioned, Santa Barbara and San Diego are on the coast; Los Angeles is about seventeen miles inland. San Bernardino, about sixty miles inland. Yuma is situated in the heart of the arid basin region, the town is just over the line in Arizona (old Fort Yuma is in California).

STATION.	Average Rainfall in inches.
Santa Barbara	15.8
Los Angeles	17.6
San Diego	10.6
San Bernardino	15.9
Yuma	2.3

In general the rainfall of the western part of Southern California is sufficient to produce as much as the soil will stand without "wearing out." This on the average will hold good six years in seven. In the eastern region, wherever water can be obtained for irrigation, vegetation grows with wonderful luxuriance, as may be seen in the case of the railway station at Indio, in the Colorado Desert. Without artificial irrigation, scarcely anything beyond a few species of cactus and agave will grow.

From the preceding it will be seen that the habitable portions of Southern California receive but a trifle less of rain than the lower Sacramento Valley, and considerably more than the San Joaquin Valley.*

A more important factor than the rainfall, is the relative humidity of the air. This is a matter somewhat difficult to present, as the atmosphere may be extremely "moist" one day, and very "dry" on another, and yet in both cases contain exactly the same amount of aqueous vapor. The cause, it is hardly necessary to state, is due to a difference in temperature. In the one case the air, because of its low temperature, contains nearly or quite all the vapor it can possibly hold. In the second case, while the air may contain the same amount or even more of moisture, the air seems dry, because its high temperature enables it to hold three or four times as much vapor as it appears to contain. In Southern California the seasons of dry air and moist air are well marked. Aside from these there are belts of country especially liable to heavy fogs.

From the time of the first rains, the belt of country next the coast is bathed in an atmosphere which is tolerably moist. At a distance of a few miles inland the relative humidity increases—not because there is more moisture but because the temperature is apt to range lower. Here the fogs are heaviest and the deposition of dew is greatest. Beyond this belt as the distance from the coast increases, the relative humidity decreases, until, at the crest which separates the Pacific Slope from the Great Basin, the air throughout the year is dry, pure, and invigorating. During the Summer months the relative humidity is much less than in Winter. The deposition of dew ceases altogether, and the atmosphere becomes very dry. There is no decomposition of organic matter, because there are no Summer rains. As a result, the atmosphere is so pure and free from organic germs, that meat exposed to the air cures or "jerks," but does not putrify. In the Colorado Desert, and even in the high mesa lands west of the divide, culture fluids, such as are used in cultivating bacteria, if properly sterilized, often evaporate without "breaking down." It must be borne in mind, however, that this condition, although a prevalent one, is by no means universal. There are many days during the rainy season when the atmosphere is damp, chilly, and depressing. There may also be occasional localities where on account of excessive irrigation and imperfect drainage, etc., the atmosphere is liable to be unwholesome, and malarial diseases might prevail. Damp and chilly days, however, are rare even in Winter, and the few localities (which are not properly drained) where malaria might prevail can be readily avoided.

---

* Sacramento, 19.7 inches; Stockton, 16.7 inches; Visalia, 9 inches.

WINDS.

The prevailing winds of this region are generally called "trade winds." This name may answer for want of a better one, but, as a matter of fact, the upper and prevailing currents of air have more the nature of monsoons than of trade winds. During the Winter months the prevailing winds are from the south and southwest; during the Summer months, from the north and northwest. As a general thing, local winds assert themselves all over this part of the State, and, in fact, throughout the Pacific Coast. Thus along the coast the land and sea breezes are nearly always to be found. They are very noticeable at Santa Barbara, Santa Monica, and San Pedro, perhaps less so at San Diego. During very hot days in the interior, a stiff sea breeze all along the coast blows inland to replace the rising current of hot air. As a result, there is not only cool weather along the coast, but the temperature of the inland belt is considerably modified. This is shown in comparing the temperature of the region west of the great divide with that east of it. In the former the temperature rarely reaches 90° Fahrenheit, while in the latter it frequently ranges from 115° to 125° for days at a time.

Another health-giving, but extremely disagreeable wind, is the "Santa Ana," or "norther." This is a hot and very dry wind, usually confined to limited localities a few miles inland, but occasionally sweeping over a broad belt of country. During the progress of this wind the air is highly electrified. Horses' tails stand out like thick bushes, the hair of the head crackles sharply when rubbed with the hand, and metallic bodies resting on an insulating material, such as dry wood, discharge themselves with visible sparks when a conductor is brought near. In one instance, it is said, the telegraph line between Los Angeles and Tucson, some four hundred and fifty miles in length, was detached from the battery and operated by the earth currents alone. After the clearing away of one of these wind storms, the atmosphere becomes wonderfully clear, pure, and invigorating.

In general, the direction of the local winds of the interior is governed, to a great extent, by the direction of the mountain ranges and the various passes. Thus the "Santa Ana" wind receives its name, because it frequently issues from the Santa Ana Pass.

TEMPERATURE.

The mild and genial temperature to which Southern California owes its celebrity is due to two causes—low latitude and ocean winds. Lying in the latitude of South Carolina and Georgia, warmth would necessarily result from the nearly vertical rays of the sun. But while the latter States are swept chiefly by land-winds, the former is perpetually swathed in winds that have been warmed by tropical waters. The climate has, therefore, the features of an ocean climate; that of the coast region is typically oceanic, and this is the secret of its uniformity. It is hardly necessary to state that the temperature is most uniform along the coast, and that the daily range increases as one travels from the coast towards the interior.

As an instance of the mildness of the coast climate the average of the twelve hottest and twelve coldest days at Santa Barbara are respectively 81° and 62°. The highest reading for this year, which is taken at random, is 92°; the lowest 42°. The result would have been materially the same if San Diego, Long Beach, or Santa Monica had been taken as an example.

The following table shows the mean temperature of the principal localities of Southern California for a period covering four years. There would have been no material difference had the period been extended to ten years:

STATION.	Mean Temp., June, July, and August.	Mean Temp., Dec., Jan., and Feb.
Santa Barbara	74.2	57.6
Los Angeles	66.1	50.0
San Diego	66.3	53.1
San Bernardino	69.0	49.0
Yuma	87.1	54.8

At Los Angeles, during the year 1880, the thermometer rose as high as 90° only fourteen times, while at San Diego this temperature was recorded only six times.

East of the divide which separates the Great Basin from the Pacific Slope, the heat of Summer becomes exceedingly fierce. A temperature of 135° has been recorded in the Colorado Desert, and one of 120° is by no means uncommon. At Yuma, during the year 1880, there were one hundred and eighteen days in which the temperature exceeded 100°, and twenty-eight days in which it exceeded 110°. At Indio and Dos Palmas, two stations on the Southern Pacific Railroad, the heat has been even more severe.

It is worthy of remark, however, that in this region, such high temperature is by no means intolerable. Because of the dryness of the atmosphere, there is no greater discomfort with the thermometer at 120°, than in New York or in Chicago at 95°. Sunstroke is almost unknown, and people who live in this locality remain out of doors unconcernedly, the thermometer meanwhile indicating a temperature which, in a region of Summer rains, would almost depopulate it by sunstroke.

In the western part of Southern California, frosts are rare, and are confined to the river bottoms, and the high mountain altitudes. There are extensive belts of land where they never occur. Tropical fruits and exotic plants may suffer from drought, but not from cold.

It is also worthy of remark that, although the Summer days may be unpleasantly warm, the nights are invariably cool. Flannel may and should always be worn next the skin throughout the year, and there are not half a dozen days in the year when light woolen outer garments are uncomfortable.

DISEASES.

In order to obtain reliable data on which to base a satisfactory report upon the prevalent diseases of this section, a circular letter was directed to numerous reputable resident practitioners, asking for information on this point limited to the years 1884 and 1885. Of those addressed fifty-one responded in detail.

To make the individual reports complete very many personal communications were necessitated, the resulting correspondence becoming quite voluminous. I desire here officially, as I have privately by letter, to express my gratitude to the many busy physicians who so fully responded to my inquiries, and thus made this report possible. Especially am I indebted to Dr. F. A. Seymour of Los Angeles for valuable counsel and assistance.

After repeated careful examination and comparison of these replies, it has seemed best to present a condensed tabulated summary, in which the relative frequency of the several diseases reported shall be expressed by words instead of numbers. The following reasons among others have led to this decision: First, the fact that most of the reporters have quoted from memory. Second, a numerical report to be of value must include a memorandum of the total population among whom the reporter has practiced, and his total number of cases of all kinds, in the period named as well. Without these figures for purposes of comparison a numerical statement must be misleading. Third, the words here employed to describe the results of professional observation are such as must convey to the general reader a more satisfactory idea of the facts than ever figures could do.

Inasmuch as certain reporters may notice that the tabulated statement varies somewhat from their reports, it is but right that the rules should be stated upon which the final summary was based:

First—Where there was but one report from any locality, the facts were recorded without change.

Second—Where from any locality some reported a disease frequent, and others absent, in the table it will be found *occasional.*

Third—When some reported rare, and others occasional, *occasional* was adopted.

Fourth—Where some reported rare, and others absent, *very rare* is used.

Fifth—Where some reported occasional, and others absent, *rare* is employed.

These rules have been departed from to the least possible degree, and only where a wide discrepancy has been noticeable between the report of an old resident practitioner and of a comparatively recent arrival. Before giving the table it may not be amiss to present concisely a few topographical facts pertaining to the several localities reported, and in the order in which they appear.

SANTA BARBARA.—On the coast. Exposure, southerly. Sheltered by mountains to northward.

SANTA MARIA.—Thirteen miles inland. Elevation, about three hundred feet. Surrounded by mountains, but not sheltered from trade winds. Prevailing winds west and northwest.

LOS ALAMOS.—Thirty-five miles inland. Elevation, five hundred feet. Sheltered by mountains; but the valley runs into other valleys which open out to the ocean. Prevailing wind northwest.

SAN BUENAVENTURA.—On the coast. Exposure, southwesterly.

NORDHOFF.—About fifteen miles inland. Elevation, about fifteen hundred feet. An upland valley (Ojai), surrounded by mountains, sheltered from ocean winds and fogs.

SANTA MONICA.—On the coast. Exposure, southwesterly. Sheltered by a low range of mountains to northward.

WILMINGTON AND SAN PEDRO.—On the bay. Southerly and easterly exposure. Sheltered somewhat from westerly winds by the peninsula.

COMPTON.—Twelve miles inland. Elevation, about eighty feet. In the artesian belt of wet lands. Sheltered by a low range of hills on the northwest and south. Exposed to westerly winds.

DOWNEY.—Fourteen miles inland, on the San Gabriel River. Elevation, about one hundred and twelve feet. Exposed to westerly winds.

FULTON WELLS (or IRON SULPHUR SPRINGS, a health resort).—About fourteen miles inland. Elevation, about one hundred and fifty feet. On the eastern margin of the artesian belt, on a mesa approaching a low range of hills to the eastward. Winds from the southwest, never heavy.

ANAHEIM.—Twelve miles inland. Elevation, one hundred and thirty-three feet. On the south bank of the Santa Ana River. Sheltered on the north and east by a low range of hills and exposed to the ocean breeze on the south and west.

SANTA ANA.—Ten miles inland. Elevation, about one hundred and forty feet. In an open valley. Sheltered on the north and east by a low range of hills. Exposed to mild ocean winds from the south and west.

ORANGE.—Twelve miles inland. Elevation, about one hundred and forty feet. In an open valley, sheltered on the north and east by the Santiago Mountains, and exposed to mild ocean winds from the south and west.

POMONA.—About thirty miles inland. Elevation, about eight hundred and fifty-five feet. In the San José Valley. Sheltered on the west by the San José hills and on the north by the Sierra Madre Mountains. An open plain to the east. Prevailing winds from the south and west: never harsh.

AZUSA.—Thirty-five miles from the coast. Elevation, about five hundred feet. An agricultural settlement near the foot-slope of the Sierra Madre Mountains. Exposed to mild southwest winds.

PASADENA.—About twenty-eight miles inland. Elevation, about one thousand feet. On the foot-slope of the Sierra Madre Mountains. Sheltered on the west by a low range of hills, on the north by the Sierra Madre, and exposed on the south and west to a temperate ocean breeze.

SAN FERNANDO.—Twenty-five miles inland. Elevation, one thousand and sixty-seven feet. A large open valley, sheltered on the south and west by a low range of hills, on the north by the Sierra Madre Mountains. Prevailing winds from the south.

NEWHALL.—About thirty-five miles inland. Elevation, twelve hundred feet. On the north slope of the Sierra Madre Mountains, at the head of the Santa Clara Valley, surrounded by mountains on the south, west, and east. Prevailing wind from the southeast. Oil region.

LOS ANGELES.—Seventeen miles inland. Elevation, from two hundred and fifty to four hundred and fifty feet. Open approach from the ocean from the south and west. Sheltered on the north by the foothills of the Coast Range, and on the east by the Sierra Madre Mountains. Prevailing winds from the south and west.

SAN BERNARDINO.—About sixty miles inland. Elevation, one thousand and seventy-three feet. Surrounded on the north and east by the San Bernardino Mountains, on the south by the San Jacinto and Temecula Mountains. Artesian section. Exposure to westerly winds.

COLTON.—About fifty-five miles inland. Elevation, nine hundred and seventy-two feet. Surroundings practically the same as those of San Bernardino, which is but four miles distant.

RIVERSIDE.—About fifty miles inland. Elevation, nine hundred and fifty-five feet. On the south bank of the Santa Ana River. Exposed to the same winds as San Bernardino and Colton, and to the winds from the Cajon Pass and Santa Ana Cañon.

CALICO.—One hundred and twenty miles inland. Elevation, twenty-two hundred feet. On the north side of the Sierra Madre Mountains, and surrounded on the north and west by a low range of mountains. In the Mojave Desert. Prevailing winds from the north and west.

SAN DIEGO.—On the main shore of a land-locked bay. Sheltered from heavy trade winds, and exposed only to moderate winds from the west.

NATIONAL CITY.—Similarly situated and but four miles distant from San Diego.

VALLEY CENTER.—About twenty miles from the coast, in a small inland valley (Bear Valley). Elevation, about two hundred feet.

A TABULATED PRESENTATION

Of the various Diseases met with in Southern California during 1884-85.

ABBREVIATIONS:—A, Absent; R, Rare; V R, Very Rare; O, Occasional; F, Frequent.

	SANTA BARBARA COUNTY.			VENTURA COUNTY.		LOS ANGELES COUNTY.													SAN BERNARDINO COUNTY.				SAN DIEGO COUNTY.	
	Santa Barbara	Santa Maria	Los Alamos	San Buenaventura	Nordhoff	Santa Monica	Wilmington and San Pedro	Compton	Downey	Fulton Wells	Anaheim	Santa Ana	Orange	Pomona	Azusa	Pasadena	San Fernando and Newhall	Los Angeles	San Bernardino	Riverside	Colton	Calico	San Diego and National City	Valley Centre
I.—THOSE DEPENDENT UPON, OR IN ANY WAY MODIFIED BY CLIMATIC INFLUENCES.																								
GENERAL DISEASES.																								
a. Diathetic.																								
1. Rheumatism	R	F	F	F	R	O	O	R	O	A	O	R	R	R	O	R	R	R	O	O	O	R	O	O
b. Malarial Affections.																								
1. Intermittent fever	A	A	A	A	A	A	O	O	O	A	R	A	V R	A	A	R	A	V R	O	R	R	F	A	A
2. Remittent fever	R	A	O	O	A	A	O	A	R	A	V R	A	V R	A	A	R	R	R	O	R	R	F	O	A
3. Typho-malarial fever	R	A	R	A	A	V R	R	R	R	A	O	R	A	O	O	R	A	O	O	R	R	O	R	R
LOCAL DISEASES.																								
a. Intestinal Affections.																								
1. Diarrhœa	A	V R	V R	O	R	R	F	R	O	R	O	R	O	R	O	R	A	O	O	O	R	F	O	O
2. Cholera morbus	A	V R	V R	R	R	R	O	R	A	A	O	A	O	V R	V R	V R	A	R	R	A	A	O	O	A
3. Cholera infantum	A	V R	V R	R	R	V R	O	A	R	A	R	V R	A	V R	O	A	A	V R	R	A	R	R	O	A
4. Dysentery	V R	V R	V R	R	R	R	O	A	R	A	O	R	R	R	F	V R	R	V R	O	R	O	F	O	A
b. Respiratory Affections.																								
1. Influenza	R	O	F	O	A	A	F	F	F	A	F	O	O	O	F	O	A	O	O	O	R	O	O	A
2. Catarrhal fever	R	O	A	O	A	A	O	A	F	R	R	O	O	R	F	A	A	O	O	O	R	V R	R	A
3. Laryngismus	O	O	R	R	R	R	O	O	R	A	O	O	O	O	V R	R	A	O	R	R	R	A	O	R
4. Croup	A	O	R	R	R	V R	R	O	V R	A	O	R	V R	V R	V R	R	A	O	V R	V R	V R	A	O	R
5. Bronchitis	R	R	O	R	R	R	F	F	O	A	O	R	R	V R	O	R	R	O	O	R	O	O	O	A
6. Congestion of the lungs	R	R	A	A	R	A	O	A	V R	R	V R	V R	V R	V R	R	A	A	R	V R	V R	V R	O	R	A
7. Pneumonia	R	O	O	R	R	A	O	V R	V R	R	V R	R	R	R	O	A	V R	R	R	V R	V R	O	O	A

8. Bronchial asthma	R	O	O	R	R	R	O	O	O	O	V R	V R	R	V R	O	A	V R	R	R	A	A	V R	R	R
9. Hay fever	A	A	A	A	R	A	A	A	A	A	A	A	A	A	A	A	A	V R	A	A	A	A	R	A
10. Pleurisy	R	O	O	R	R	V R	R	O	A	R	V R	R	R	R	A	A	A	V R	R	V R	V R	R	R	A
11. Phthisis pulmonalis	R	R	O	R	A	A	R	V R	A	A	R	R	A	R	A	A	V R	V R	V R	V R	V R	R	R	A
c. Cardiac Affections.																								
1. Functional cardiac disturbance	O	F	O	O	R	A	O	O	R	A	R	O	R	O	O	O	A	O	O	O	O	R	O	O
2. Organic diseases of the heart	R	O	R	O	R	V R	O	A	R	A	R	R	R	O	O	O	A	O	R	R	R	R	O	O
3. Cardiac asthma	O	O	A	O	O	V R	V R	V R	V R	A	A	A	A	R	O	A	A	R	V R	V R	V R	V R	R	R
d. Hepatic Affections.																								
1. Acute diseases of the liver	A	A	A	R	A	A	R	O	O	R	O	O	R	O	A	O	A	R	F	O	O	R	R	A
2. Chronic diseases of the liver	R	A	O	F	A	O	F	A	O	O	O	R	O	O	O	O	O	O	O	O	O	R	O	A
e. Affections of the Nervous Apparatus.																								
1. Myalgia	O	F	F	F	R	O	F	O	O	A	F	O	R	O	O	O	R	F	O	O	O	R	F	O
2. Infantile convulsions	R	R	R	R	R	V R	V R	A	R	V R	O	R	R	R	R	R	A	R	O	V R	R	A	O	A
3. Cerebro-spinal fever	A	R	A	A	R	A	A	A	A	A	V R	A	A	A	A	A	A	V R	V R	A	A	A	V R	A
4. Tetanus	V R	A	R	R	A	A	A	O	O	A	V R	A	A	A	A	A	A	V R	A	A	A	A	V R	A
5. Tubercular meningitis	R	R	A	A	R	A	A	A	A	A	V R	A	A	R	A	V R	A	V R	V R	A	A	R	V R	A
II.—THOSE NOT DEPENDENT UPON OR IN ANY WAY MODIFIED BY CLIMATIC INFLUENCES.																								
GENERAL DISEASES.																								
a. 1. Typhoid fever	O	R	A	R	A	A	O	F	A	A	O	R	O	R	O	R	V R	O	R	R	R	F	R	A
LOCAL DISEASES.																								
a. Intestinal Affections.																								
1. Peritonitis idiopathic	A	R	A	R	A	A	R	O	A	A	A	A	A	O	O	A	A	V R	V R	V R	V R	V R	R	A
b. Renal Affections.																								
1. Acute nephritis idiopathic	R	R	A	O	A	A	R	A	V R	A	V R	R	A	V R	A	R	A	R	V R	A	V R	R	O	A
III—CONTAGIOUS AFFECTIONS.																								
1. Measles	R	O	O	O	O	A	A	A	A	A	O	R	O	O	O	A	A	O	A	R	R	A	O	A
2. Scarlatina	R	A	A	R	R	V R	V R	V R	V R	A	O	R	O	R	O	R	R	O	O	O	O	R	O	A
3. Diphtheria	R	R	A	A	R	V R	O	V R	V R	A	R	R	V R	A	O	A	R	O	O	O	V R	V R	O	R
4. Erysipelas	R	R	A	R	A	V R	O	V R	V R	A	V R	R	R	V R	V R	A	O	V R	R	V R	V R	O	V R	R
5. Puerperal fever	V R	V R	V R	A	A	A	R	O	A	A	V R	R	A	R	A	A	A	V R	O	V R	A	V R	V R	R
IV.—MISCELLANEOUS.																								
1. Hydrophobia	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	-----
2. Trichinosis	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	-----
3. Tænia	R	O	O	A	A	A	O	R	A	A	A	R	A	O	O	A	R	V R	O	O	A	R	O	-----

While the table speaks for itself, it is possible to add to its practical usefulness by special comments and an occasional quotation from the remarks of some of the reporters.

It will be observed that rheumatism is reported as frequent in but three localities, and those are noted for their westerly exposure and damp sea breezes. Santa Maria and Los Angeles are the only points where the acute form is especially noted. Dr. R. W. Hill, San Buenaventura, reports "rheumatism common, due to exposure, irregular mode of life, and exhausted vitality."

In analyzing the various reports presented, it was found that quite a good many included by especial reference the muscular variety or myalgia. This distinction is important. For while acute rheumatism is of rare occurrence, myalgia is to be noted at almost every point below the fog line nearly every month in the year, but more frequently during the rainy season. Neuralgias of the head are less frequent than myalgia, while sciatica is still less frequent than the former.

Of the malarial affections, so essentially dependent upon local causes—intermittent and remittent fevers—are reported as frequent in but a single locality, the mining town of Calico; while in the majority of the twenty-seven places reported, they are entirely unknown, or very rare.

In regard to typho-malarial fever, there obtains the same difference of opinion here as to its entity, as in the East. Some reporters deny its existence, while others of equal experience from the same localities report its presence. With the almost total absence of strictly malarial fevers, it seems hardly reasonable that malarial complications should be found associated with typhoid symptoms. And yet, my personal observation confirms the reports from several points, that occasionally there is to be encountered a fever as distinctively typho-malarial as that seen in camp during the late war, and so designated by Surgeon J. J. Woodward, U. S. A.

It is proper to remark in this connection, that a difference of opinion has been noted as to the presence and prevalence of typhoid fever. The view held by a majority of the reporters is, that the disease is seldom or never seen in this region. It is reported frequent in but two localities, viz.: Compton and Calico; points remote from each other, and of widely different climatic peculiarities.

Dr. F. S. Whaley, the reporter from Compton, and for many years a resident of this State says: "Typhoid fever is the endemic fever of this section, and of the principal part of the State, according to my observation."

Dr. J. A. Crane of Santa Ana, writes: "A few well-marked cases of typhoid occur each year in our valley. A simple continued fever, bearing some general resemblance to typhoid, *but lacking the more essential features*, occurs rather more frequently. It is usually called typhoid for the lack of a better name. This form is rather more prevalent during the Autumn months."

Dr. C. M. Fenn of San Diego, says: "We have sporadic cases of *California* typhoid, *i. e.*, without the intestinal lesion."

It is noteworthy that San Diego and Santa Ana both report typho-malarial fever rare.

But two reporters trace their cases to specific origin. Dr. W. T. Lucas, of Santa Maria, says: "We have a sporadic case of typhoid now and then. We experienced a local epidemic in November and December, 1885, traceable to an old well of water that had been neglected until the owners could use it no longer. A new well was dug, but too late to prevent those using the water from being infected." Dr. O. H. Congar, of Pasadena, reports: "I have seen only four cases within the past eight years—

due to open ditch water being contaminated by hog wallowing, cattle excrement, etc."

It might be supposed that intestinal affections would prevail throughout this section by reason of the probable indiscreet use of fruit, but such is not the case. Diarrhœa is reported frequent at San Pedro, probably among the sailors, and at Calico among the miners. Dysentery is reported frequent at Calico, doubtless because of the insanitation incident to mining communities. The only other point where it is reported frequent is at Azusa, otherwise one of the most healthful sections of the State. In regard to this, Dr. Samuel McCurdy writes: "Dysentery is frequent during April, May, and June, or during the irrigating season. But we have very little sickness of any kind here. Like all Southern California, it is very healthy. The great danger to health is our open ditches when decayed vegetation is allowed to remain, and the water infected, though sparkling and bright, finds its way into our cisterns."

The only deleterious effects resulting from fruit are reported under the head of infantile convulsions. This form of trouble, so common east of the mountains, and intimately associated with dentition, is a rare affection here. Several reporters record cases of it, due to the ingestion of *unripe* oranges.

Respiratory affections, which in some form or other constitute the most powerful incentive to immigration to this section of the Pacific Coast, have demanded no little care in this report, and have been quite faithfully considered by the reporters. There has been a misunderstanding on the part of many as to the differential diagnosis between influenza and catarrhal fever. By the former is meant inflammation of the upper air passages, or common cold in the head; by the latter, superficial congestion of the lower air passages, stopping short of bronchitis, yet accompanied by cough, sometimes by a frothy mucus or slightly muco-purulent expectoration, and some elevation of temperature. Here, as elsewhere, these disturbances may exist separately or conjointly; and while occurring most frequently during the rainy season, they may prevail in a slightly epidemic form apparently independent of the weather. Reporters generally indicate the mildness of these cases, and the fact that they seldom demand medical treatment. It is noticeable that one or both of these affections constitute no inconsiderable part of the process of acclimatization, which nearly all newcomers must undergo.

It is also worthy of remark that persistent negligence of care and proper treatment during these attacks, when severe, frequently results in the establishment of nasal or naso-pharyngeal catarrh. This is more particularly true of persons residing on damp lands, or in localities exposed to the raw westerly sea breeze. Newcomers require to be constantly reminded that while this region has been designated semi-tropical, the marked diurnal range of temperature does not seem to entitle it to the name; but that by reason of the lowest degree registered daily by the mercury, this is a cool rather than a warm country. And, inasmuch as the cutaneous surface adjusts itself more readily to unusual elevations of temperature than to corresponding depressions, it is very essential that the residents of this region, as previously noted, wear woolen garments next to the skin all the year, and thus provide against the exigencies of the coldest period of the twenty-four hours. The weight of the woolen may be varied as between the wet and dry season, but it is really safer to make the change in the weight of the outer garments.

Croup and laryngismus are of infrequent occurrence.

Bronchitis is reported frequent only at the seaport of San Pedro.

Pneumonia, the scourge of the nation, east of the mountains, from the icy regions of the North to the semi-torrid regions of the extreme South, is almost a stranger here. Whether our soil and climate are uncongenial to the pneumo-coccus, or whether that enterprising microbe has his time wholly occupied as yet in the more densely populated sections eastward, remains for the present unknown. An occasional case of lobular pneumonitis is reported, but the lobar variety is rare.

Asthma, whether of the bronchial or cardiac variety, seldom originates in this section. Many cases come here for relief, and demonstrate the obstinate and as yet incomprehensible eccentricities of the affection. All of them do well; indeed, all of them recover, if willing to submit to the tyranny of the climate-hungry neurosis. Relief is not to be found in any one locality for all cases. Probably Nordhoff and Colton afford the environments demanded in the majority of instances.

Hay fever, the asthma of many aliases, has never been known to originate here. The nearest approach to it is in two cases of conjunctivitis from rose pollen, reported in persons who in the East were victims of rose-cold. As a rule, persons who have suffered an annual visitation from this miserable affection, at any point east of the mountains, enjoy complete immunity from invasion in Southern California.

The reports on pulmonary phthisis have been very full and candid. The mortuary records, whenever accessible, show a greater percentage of deaths from this cause than from any other. But it is also true that the vast majority of these deaths occur among persons who have come here already infected, in hope of restoration. Very few of them have resided here so long as one year.

Dr. C. B. Bates of Santa Barbara, writes: "This being a health resort, we have many cases of tubercular disease amongst our visitors. These diseases are rare, however, among the native white population, but common with the Spanish portion of the residents. This latter fact I ascribe:

"*First*—To close intermarriage through a long series of years.

"*Second*—To change of habits since the coming of the Americans (Anglo-Americans), they live more in their adobe houses, not so much out of doors as formerly, and poorer, perhaps not well nourished; and in many ways are not hygienically so favorably situated as in times past. Thirty or forty years ago, tubercular disease was rare among them; now, each year it becomes more common."

Dr. W. T. Lucas of Santa Maria writes: "We have more or less of phthisis all the time. But outside of the poorer class of *native* (Spanish) population, none to speak of except among those coming in from other localities." And in a foot-note he says: "Outside of a tendency to lung trouble I regard this a very healthy valley. Those who have a tendency to phthisis do not do well here."

Dr. J. Will Graham of Los Alamos reports: "Phthisis pulmonalis prevails here to a considerable extent, especially among the Californians" (Spanish). In a foot-note he writes: "You will notice that respiratory troubles are ahead of all other diseases; that is owing to the sudden and frequent changes of temperature in this valley."

Dr. R. E. Curran, San Buenaventura, reports: "Phthisis pulmonalis is common among natives (Spanish). Americans mostly imported."

Dr. R. W. Hill of the same place writes: "Phthisis is increasing among the native Californians, due to insufficient and improper diet and clothing, and poorly ventilated dwellings."

Dr. Ira Perry, late of Nordhoff, writes: "Only one case of phthisis known to originate in this valley (Ojai) in five years. A girl of eighteen nursed her mother who died of the disease, and then continued to live in the same house until her own death from the same cause, a year or more subsequently. I think about one half of the deaths here during the last five years were from phthisis pulmonalis—come from abroad. This is a resort for consumptives, many of whom die, as they will anywhere when setting at defiance the laws of hygiene with reference to food, air, and exercise. As a rule the rich and lazy die; while nearly all who go to work improve."

Dr. W. L. Brown of Downey City writes: "I have seen many cases, but none that have originated here; nearly all, cases that have come here as a last hope."

Dr. J. S. Griffin of Los Angeles writes: "Phthisis pulmonalis, formerly very rare among native Californians (Spanish), is more frequent during the past few years. Imported cases are numerous."

Dr. J. P. Widney, Los Angeles, reports: "This disease among the Spanish has been rare, but it is growing more frequent as they mingle with Americans. Still in the native born population it is not so frequent as in the East and in Europe. Imported cases are very numerous."

Dr. J. H. Bullard of Anaheim writes: "Phthisis pulmonalis is occasionally usually introduced. Not rare among white-Spanish offspring."

Dr. J. A. Crane, Santa Ana: "Have seen three or four cases which it is said originated here, and pursuing a rapid course ended fatally in a few months."

Dr. C. W. Brown, Pomona: "Most frequent cause of death here, but in immigrants almost wholly. Some cases in Mexicans."

Dr. John C. Kerr, Pasadena: "This is more frequent than any other disease: but almost all cases come from the East. I have seen several cases of local origin, but they were among Spaniards, and were catarrhal in form."

Dr. C. M. Fenn, San Diego: "Like the poor always with us; but it comes chiefly from abroad. White Americans seldom if ever contract it here." In a foot-note he writes: "While phthisis not infrequently carries off the native Mexicans and Indian races, I cannot recall a single case of a white person contracting the disease here."

The remarkable uniformity of these independent reports in regard to the introduction and rapid extension of phthisis pulmonalis, among the Spanish natives, demands at least a passing notice; especially when taking into consideration the rarity of its origination among the Anglo-Americans.

With the general absence of the accepted climatic factors conducive to the development of phthisis, the physical conditions above enumerated by Dr. Bates more particularly, must be recognized as the remote cause of the race deterioration in this specific direction. It is not probable that the downward tendency having been once positively determined, any arrest may be expected.

The rapid increase of the white races has steadily placed the Spanish at sad disadvantage. Here as everywhere the rich become richer and the poor become poorer; and with the inevitable attendant evils of an impoverished condition, the near future will probably witness the extinction of these earlier occupants of this sunny southwestern shore, and phthisis will have not a little to do with the finale. But the pendulum, with an uniform propellant force behind it, must swing in an uniform arc. In-door residence, light houses whether of adobe (mud) or wood, abandonment of walking and horseback exercise, must eventually do for the rich American what similar conduct is effecting for the poor Spaniard.

The question of extension by contagion has not been broached by the reporters, except in the inferential case at Nordhoff recorded by Dr. Perry. During the period covered by this report, three well authenticated cases have been brought to my knowledge by a careful, conservative, medical observer of Los Angeles. If the bacillus tuberculosis be accepted as the proximate cause, and the adoption of insanitary modes of life the remote, there remains no adequate barrier to the wide extension of phthisis here as elsewhere. The mildness of our climate attracts the feeble of all lands, and of these multitudes, cases of phthisis probably preponderate in the proportion of ten to one. As has been demonstrated, the joint occupancy of bed or room by the consumptive and the well, acts unfavorably upon the latter; and in many instances is followed by health failure and early death from phthisis.

Whether a "*propter*" from this "*post*" may be argued or not, satisfactorily to all, the oft observed fact remains. One of the most frequent occurrences throughout this region is this insanitary intimacy. Whether believers or not in the bacillus as a potential factor in the propagation of this, the greatest enemy of the human race, medical men everywhere owe it to the well, to protect them, so far as may be, from the almost inevitable evil resulting from such unfortunate association.

If the bacillus theory be true, the great danger to the general public lies in the myriads of these microbes which are daily deposited on every thoroughfare in the sputa of the suffering multitudes. Cultivators assert that the most virulent form of tubercular sputum is the dried and pulverized. Thus, the sunshine and the breeze, health giving and invigorating to the sick, may become the agents of destruction to the well. No needless alarm is proposed by these remarks, but in the interest of preventive medicine—*the medicine of the future*—the attention of sanitarians is urged with emphasis to this important subject.

The existence of the various cardiac affections is almost unknown except in the case of strangers.

Dr. Bates, Santa Barbara, writes: "Acute diseases of the heart are rare; chronic more common. Many strangers come here suffering from valvular disease."

Santa Maria and San Buenaventura may, to some degree, be considered as exceptions.

Dr. Lucas, representing the former, writes: "It seems to me, for a pastoral and farming community, we have considerable heart trouble here. Of course many cases come in from other places seeking relief."

Dr. Hill, of San Buenaventura, reports: "Rheumatic pericarditis is the most frequent form of heart trouble encountered with us. Valvular disease is quite common among our pioneers who underwent unusual fatigue and exposure."

Dr. Whaley, of Compton, writes: "Of organic diseases of the heart we have none; functional disturbances occur occasionally."

Dr. W. A. Brown, of Downey, says: "We often meet cases of valvular insufficiency newly arrived from the Western States; have met but two cases originating here."

In regard to hepatic affections, the general report is, "rare, except imported." Some few exceptions are noted.

Dr. Lucas, of Santa Maria, writes: "We have no diseases of the liver, except cirrhosis, due to the use of intoxicants."

Dr. Curran, of San Buenaventura, reports: "Hepatic congestion frequent; but no more so than is customary in warm climates."

Dr. Hill, of the same place, says: "Diseases of the liver are to be met with, due most frequently to the abuse of food and dram drinking."

Dr. Weldon, of San Pedro, writes: "Diseases of the liver plenty, from drinking." And in a foot-note adds: "There is a great deal of liquor drank here, and in consequence we have a great many rum stomachs and gin livers to patch up."

Dr. Griffin, of Los Angeles, remarks: "Diseases of the liver are rare, except from alcoholism or other excess."

Dr. C. W. Brown of Pomona, reports: "Diseases of the liver, I judge, are as common here as in the East. Much is brought from malarious localities."

Dr. Kerr, of Pasadena, writes: "Inactivity of the liver common here."

Dr. Crane, of Santa Ana, says: "Functional derangements of the liver not infrequent; organic, rare."

Dr. Fox, of San Bernardino, reports: "Some cases of cirrhosis. Functional disturbance not uncommon. Organic lesion, except from intemperance, rare."

Nephritis idiopathic, another terror of the United States, north and east of the mountains, is not established here as one of the prevailing diseases. We note the comments of those reporting it.

Dr. Bates, Santa Barbara, reports: "A few cases occur each year, usually caused by exposure to rain during the Winter, or to a long ride in a cold wind."

Dr. Lucas, Santa Maria, remarks: "We have a case now and then, generally due to exposure."

Dr. R. W. Hill, San Buenaventura, writes: "Acute nephritis often met with, caused by exposure, over-exertion, mental and physical. Intemperance a frequent cause."

Dr. J. C. Kerr, Pasadena: "A case now and then, caused by drinking."

The ordinary contagious affections are almost as infrequent as the non-contagious. But one especially noteworthy feature has been mentioned by reporters, viz., the general mildness of the attacks, and the absence of serious sequelæ.

Under the caption "miscellaneous," tænia alone is even occasional. From my own observation I am able to report its presence as by no means infrequent; but I am very sure it is far from being as common as the charlatans would have their patients believe. Indeed it has been reported that not a few specimens, said to have been removed from willing victims, proved to be celluloid.

From the foregoing it may be correctly inferred, that whatever may be the commercial importance of Southern California, or its future as the center of the great industries which are even now developing in our midst, its excellence as a health resort cannot be exaggerated.

"Within a circle of one hundred and fifty miles, one may find spots below the sea-level, or with an elevation ten thousand feet above it; spots that have nightly a heavy fog, and spots that never know the presence of a fog; places swept by an almost constant breeze, and others sheltered from all wind; the odors and gases from asphaltum and petroleum springs, or the air of the mountain pineries; the scent of the orange blossom, or the balsamic odor of the plants of the desert. Differences of elevation which elsewhere one travels a thousand miles to find, here are found in a radius of fifty miles."

No epidemic has ever visited this part of the State, and contagious diseases which have been brought here have never obtained a foothold. It is moreover a region of easy access by rail and steamer. Food of every variety is abundant, and all of the delicacies and comforts required by invalids are readily found.

IRRIGATION.

By H. C. Crowder, M.D., Member State Board of Health.

The question of the effect of irrigation in California is one that deeply interests every inhabitant of the Pacific Slope, and, in some localities, is the all-absorbing question of the day. Beautiful California, with her mild and invigorating climate, properly irrigated, would bloom like a rose.

The hot and arid plains of Colusa County, where one can travel half a day on a ranch belonging to one man, and where in 1884 were cast two thousand eight hundred and ninety-nine votes, could, with proper irrigation—which would cause a division of the land—support as many thousand voters as there are now hundreds, and then it is doubtful if the products could be taken care of without importing help.

It has been demonstrated beyond a doubt that oranges, lemons, and all the citrus fruits will grow and mature in Colusa County as well as in Los Angeles County. In the latter, land is worth from $50 to $500 per acre, while in the former it sells from $20 to $60. So much for irrigation.

The application of water used in irrigation varies greatly in manner, but may be described by two different methods, viz., first, by flooding the whole surface of the land by means of ditches, and the second, by sub-irrigation, where the water is conveyed through pipes beneath the surface of the ground. The latter method, being of recent date, will not be considered, owing to its being but very little used. In the application of water through open ditches, where the land is flooded, there has been various reports made by impartial judges, which are in some instances conflicting. In that portion of the country where the soil is sandy or gravelly loam of unknown depth, the water sinks, or if there is much slope, drains off very rapidly.

In Southern California, where irrigation has been carried on for more than a hundred years, there is but very little, if any, evidence that malarial diseases predominate; hence, we come to the conclusion, where irrigation is used scientifically, there will be an increase of malarial diseases *only as there is increased population in the country.* It is said that "all the M.D.'s in the State are in favor of irrigation; that it would increase their business one hundred per cent," etc. It would undoubtedly increase the population more than one hundred per cent, and in that way produce more business for all.

Along the bottom lands of rivers, where the drainage is not good, and where the soil is continually saturated or moist, the case is different. There can be found more or less intermittent and remittent fevers; and, in fact, all miasmatic and zymotic diseases prevail to a greater extent. Professor Loomis, of New York, includes those acute infectious diseases which depend upon poisons developed outside the body of the affected person:

> These poisons possess two distinct characteristics: First, each poison is specific and distinct from every other in its action, and hence, inferentially in its nature, so that the pathological process which it incites is always identical in kind and associated with that one etiological element, and with no other. These processes thus become the means of differentiating this class of poisons. Second, all of these poisons possess the power of indefinite reproduction when placed under favorable circumstances, and their resulting

diseases are, therefore, generally endemic. When the poison affects large numbers at the same time rather than sporadic, such a poison is termed a virus, and has its origin either in the bodies of diseased living beings or in decomposing organic matter. Every virus is more or less diffusible, and may be conveyed by air, fluids, or solids; while in some diseases it becomes so localized that it can be transmitted by inoculation. These morbific agents give rise to distinctive diseases, either by changes which they produce in the blood or by their direct action upon the cellular elements of the different organs and tissues. When a virus originates and attains its full development only in a living animal, and is excreted in an active state, it is called a contagion, and the disease which it produces is contagious. When the morbific agent is solely the product of decomposing organic matter, it is termed a miasm, and the affection it develops is a miasmatic or malarial disease.

Contagions may be transmitted mediately or immediately, and are reproduced with each infection. Miasms are conveyed only by diffusion generally through air or water, and their activity is limited to a single infection.

A third form of virus originates solely in diseased animal organisms, but is excreted in a passive condition, and becomes active only in the presence of decomposing organic matter. The disease in whose development such a poison is the etiological factor, are termed miasmatic contagions. The theory of organisms, or the germ theory, maintains that the infectious poisons are living organisms which, being received into the blood, reproduce themselves indefinitely, and excite morbid processes which are characteristic of certain types of disease.

This theory at the present time is quite extensively adopted, as it so readily explains very many remarkable facts connected with the development and reproduction of this class of diseases. It is readily understood, and there are so many animal poisons which appear to act in this manner, that to one whose opinions are not based upon clinical experience and actual contact with disease, the arguments in its favor seem conclusive. According to this theory, all of the different forms of diseases included under the head of infectious may be reduced to two classes: first, infectious diseases which depend for their development upon a living animal organism; second, those which depend for their reproduction upon a living vegetable organism.

We all admit that these miasms and organisms are reproduced more rapidly under certain circumstances, but we have no proof showing that irrigation is the means of bringing about these favorable circumstances; on the contrary, it has been conclusively demonstrated that imperfect drainage more than irrigation tends to develop and produce these conditions. From my own experience and observation, I can only state that malarial and low types of fever have been more prevalent during the Summer months following a comparatively dry Winter than immediately after a very rainy season, and that too where there was considerable drainage.

THE DRINKING HABIT IN CALIFORNIA.

By W. H. Mays, M.D., Superintendent of Stockton State Insane Asylum.

Intemperance is assigned as the cause of insanity in about thirteen per cent of those sent to the asylums of this State. This falls far short of the truth. There is a disposition on the part of the relatives to hide the fact of drunkenness, and hence the exciting cause is set down to sunstroke, business reverses, trouble, blow on the head, etc. Lord Shaftesbury, an authority of the utmost weight, states as his opinion that more than fifty per cent of the cases of mental disease to be found in asylums are due to the drinking habit. My predecessor, Dr. G. A. Shurtleff states, as a result of his long experience, that intemperance produces more insanity on the Pacific Coast than any other influence. Nor, with what opportunities for observation I have had, do I hesitate to add my testimony that no factor is more potent and active in the causation of insanity.

If only the evil done by the inebriate could be limited to himself! Nothing exerts more deteriorating an influence on the race of man, sapping the mental and physical health of our people. Dr. Howe, of Boston, in his report on idiocy, makes the statement that of the three hundred idiots under his care, one hundred and forty-five had drunken parents. In one instance, he continues, where both parents were drunkards, seven idiotic children were born to them. "I receive patients daily at the Bicetre," says Dr. Moreau, "in whom I can trace back the origin of their malady to nothing else but the habitual intoxication of their parents." The following direct instances where the sins of the father were visited on the children occurred in the writer's experience during general medical practice:

1. The father, a respectable business man, met with reverses and "took to drink." Although the parent of two healthy children before this, the next child born to him was a puny, malformed creature, which died before reaching its fifth month.

2. A stout, bright girl, married a man addicted to periodical drinking bouts. Their child was born disfigured with a spina bifida, and died in a few weeks of meningitis.

3. A man, well to do, in a small country town, had for years indulged every few months in an occasional drinking spree of a week or so's duration. His son, when only thirteen years old, was seen reeling along the street in a bestial state of intoxication, and at eighteen was a bloated and besotted drunkard. Instances are not rare, in the experience of physicians, of this direct transmission of the drinking tendency from father to son.

If only the evil done by the inebriate were limited to himself! There are eight thousand inebriates in California to-day, at an impartial estimate. By inebriates, I mean persons who indulge in the excessive use of alcoholics, who cannot resist the craving. Of these, suppose one half are married and have families; for your drunkard is no disciple of Malthus; grant them only one child apiece; think what a terrible inheritance is being handed down, what a ghastly gift to our young State, four thousand children with an inborn tendency to vice and disease. Four thousand children who start in the race of life with the millstone of their father's sins hung about their neck. Four thousand children with a bad organization, a proclivity to disease, a weak brain, an impotent will. Four thousand children who will only want some accidental exciting cause to push them over the border line of insanity.

If only the evil done by the inebriate were limited to himself! Looking at the family of an excessive drinker, even where intemperance has not yet brought social degradation and poverty, evidence of a heritage of weakness is generally to be seen. The girls are shallow, hysterical, with bad, explosive tempers, never under control, neurotic, emotional. The boys are dull, irresolute, infirm of will, creatures of passion and the baser instincts. They are often defective in bodily development and mental capacity. Prone to the feeling of their fathers, they are the recruits by which the grand army of the insane is constantly augmented.

A few words about beer. The consumption of this liquid is increasing daily. Fifty years ago very few Americans tasted beer, except as a rarity. It was regarded as a foreign drink. Even twenty years ago, the amount now drank would have been deemed fabulous. The idea has been entertained, and by those concerned in the brewing interest has been actively promulgated, that beer drinking is much less harmful than liquor drinking. It has ever been maintained that beer possesses nutrient properties. There is no truth in these assumptions. Nothing will lower the vital forces so steadily and surely, nothing will degenerate the organic tissues so rapidly, as the use of beer every day, and year after year. It coarsens a man, in appearance, in morals, in mental fiber, in physical constitution. It is more productive of brutality, sensualism, and the lower forms of crime than is whisky drinking. It is the beverage of the Bill Sykes, of the vulgar ruffian, the bestial tramp.

The habitual beer drinker is readily recognized by his appearance. His bloated face and form might at first sight suggest robust health, but, in reality, there is no one less able to resist disease. Sooner or later the kidneys and liver become diseased, fatty degeneration invades the substance of the heart, the vitiated system has no power of recuperation, and a slight cold or injury will carry him off.

But what of wine drinking? A halo of romance has from time immemorial glorified the juice of the grape. Poets in all ages and climes have sung its praises, have pictured to us the dancing bacchanals, the wine press spouting its stream beneath the bare feet of laughing girls, and so forth. How dearly old Horace loved a cup of old Falernian. Homer tells of wine in his day so strong that he had to dilute it with twenty measures of water. Diotimus, the Athenian, was nicknamed "The Funnel," from his wine-bibbing propensities. Cato and Seneca both loved wine not wisely but too well.

Wine producing is assuming such proportions in California as to warrant the expectation that it will soon exert some appreciable influence on the drinking habits of our people. Wine is the least harmful of all forms of intoxicants. The substitution of the lighter wines for beer or liquor would, I have no hesitation in saying, inure to the mental, social, and physical benefit of our population, and of the coming generation. In those regions of Europe where wine is produced and drank exclusively, the ratio of mental disease has always been smaller than where ardent liquors are consumed. M. Lunier has shown that those departments of France which do not cultivate the vine, contribute a much larger percentage of insanity than those which do. The rarity of intoxication among the Italian and French people on this coast is a fact generally acknowledged. But, assuming that some form of intoxicant is necessary, which I earnestly deny, whether Californians will ever become a wine-drinking people is a question that time alone can answer. With many, the craving for strong drink, the demand for a fiery stimulant, the Berserker fury, is an inheritance from our North-Europe stock, and will not be sated by the soft anacreontic fluid. The majority of native born Americans pronounce wine an insipid sort of drink, and find it hard to get up a taste for it. Yet that the habits of a people may change in this respect is shown by the present magnitude of beer consumption, where fifty years ago it was comparatively unknown as an American drink.

One word, in conclusion, as to the daily use of stimulants. Alcohol taken constantly into the system interferes with nutrition. Its properties are such as to hinder the processes of food change, of disintegration, of assimilation, going on in the stomach and intestines. Upon nerve elements it has a highly detrimental effect. Carried to the brain it acts injuriously on the exquisitely delicate structures, damaging those finer brain cells which subserve moral feeling and will.

Does steady drinking then deteriorate a man mentally? For answer to this, look around among your acquaintances. Here is one of them, a well known business man. No one ever saw him intoxicated, but is he the keen, clear-eyed worker he was seven years ago? His tact is lost, his business sense dulled; in the fierce competition for trade he has allowed himself to be outstripped. Dr. Clouston says: "I have seen strong brains in our profession, at the bar, and in business, break down from chronic alcoholic excess, without their owners ever having been once drunk." And then, these steady drinkers, how quickly they drop off. Before they are fairly into middle age they succumb to some disease attended with degeneration. Four times out of five they leave behind them a progeny whose destiny it is to be a burden to the State, either in her hospitals, her almshouses, her asylums, or her jails. If only the evil done by the inebriate could be limited to himself!

ALCOHOL, AND ITS INFLUENCE ON THE HUMAN FAMILY.

Inebriate Asylums—Their Absolute Necessity—They Should be Conducted by the State, under the Management of Persons having Special Knowledge.

By James Grey Jewell, M.D., Resident Physician, Home for Inebriates, San Francisco, California.

The subject of "Alcohol and its Influence on the Human Family," would, to properly present the matter, require, figuratively speaking, "tons of paper and oceans of ink," and much more time than a single life. In my estimation the subject is the most important, next to everlasting salvation. Hence a paper of this kind will admit of only a mere skimming over the surface of this vast sea.

To begin, then, let us inquire very briefly, "what *is* the liquid commonly known as alcohol?" In reply to this question, we will find it to be a chemical compound, generated for the most part in vegetable juices and infusions, by fermentation or distillation. Some yield much more than others. The ripe, red berries of the mountain ash yield three quarts of alcohol to the bushel. It is also obtained from honey, wood, rancid butter, old cheese, and from a thousand and one other substances.

THE ALCOHOL FAMILY.

There is a series or family of alcohols, very similar in character, only varying in quality and effect, but all agreeing in one particular: *they are all poisons.* Let us glance at a few of them:

We have *methylic alcohol*, distilled from wood.

We have *ethylic alcohol*, distilled from fermented liquids, commonly called wine spirit.

We have *butylic alcohol*, distilled from fermented beet root.

We have *mylic alcohol*, commonly known as *fusel oil*, distilled from potatoes and grain, especially when they are decayed.

There are many other varieties of alcohol, too numerous to mention here; suffice it to say they are all closely related to the father of evils, the vile spirit of the cup. In this connection an astounding fact may be stated, *i. e.*, in the United States we spend three times as much in one year for alcohol and tobacco as we do for bread, the exact figures being $1,500,000,000 for alcohol and tobacco, and only $505,000,000 for bread.

ADULTERATION OF LIQUORS.

It is not alone the ill effects of the alcohol which the drinker suffers from, but the willful drugging and poisoning of nearly all alcoholic liquors by those who deal in and manufacture them. I distinctly state that I do not mean *all* who are engaged in the traffic, for I am well aware that there are as honorable men in this business as any other. But there are also many villains, who will stop at nothing by which they may gain a dollar. There are many ways of drugging or "doctoring" liquors. One of the most reprehensible is by the use of strychnine, which gives to all alcoholic liquors a peculiar mellow flavor ("age," as it is called), much admired by chronic drinkers. Strychnine, as every intelligent person knows, is one of the most deadly poisons; it is insoluble in water, but is entirely soluble in alcohol; it exerts its force on the nerve centers; a grain and a half is generally enough to produce death. Liquors drugged by strychnine cause trembling, rigidity of the muscles, and give a maniacal expression to the face. In the last stages the patient has convulsions, labored breathing, he is almost pulseless, the lips, tongue, and fingers become blue, the face is livid, the eye is dilated, he foams at the mouth, and dies like a dog with hydrophobia.

Thus has many an erring mortal, unconscious of his danger, been sent suddenly to the grave, while others linger, in great pain and decrepitude, totally ignorant of the cause of their torment. It is quite beyond human conception that it should be necessary to persuade men *not* to drink such infamous compounds, when science clearly reveals their nature and effects upon human health and human life.

The salts of copper and lead, fusel oil, and arsenious acid are often used for adulterating liquors. All of these are powerful poisons, but strychnine and fusel oil are most frequently used. Fusel oil intoxicates more rapidly and powerfully than ordinarily pure alcohol of equal strength, but its after effects are of the most disastrous character. As before noted, it is generally obtained from *damaged* grain or potatoes, which are selected *purposely* by the distiller. It produces a deep drunkenness and frenzy, and terribly disorders the functions of the brain. Time will not permit me to go into detail in these matters; suffice it that *alcohol, whether drugged or pure, is the great consumer of man, his most determined and deadly enemy.* By observing the chemical formulæ of all alcohols, we are astonished at the close relationship which exists between them; no matter from what source derived—from wood, old cheese, vegetables, fruits, or rancid butter—they are all made up of the same elements, viz., carbon, hydrogen, and oxygen, only differing in the proportions of those elements.

Alcohol has several physical, chemical, and vital properties, which it is well to understand:

It is *combustible:* pour some in a dish, light it, and it will burn, even without a wick.

It is a *desiccant*, a drier, which is caused by its great affinity for water: so great is this affinity, that, as Professor Flint says, it absorbs about three times its bulk of water; hence it is extremely difficult to obtain alcohol in a perfectly pure state, as it readily absorbs water from the atmosphere. As medical men, we preserve many of our specimens in alcohol, and we know that the softest—the brain specimens—soon become shriveled and hard by the affinity of alcohol for the watery elements. Strong alcohol will, to some extent, cook flesh or meat, by its action on the albuminoid elements of the flesh. A very simple experiment will prove this: Break an egg, detach the white or albuminous portion from the yolk; pour strong alcohol upon this albuminous portion, and you will observe that it will become opaque and hard, just as if it had been dropped in boiling water. This is due to the desiccating or drying property of the alcohol, and it is through this property that alcohol does its work of destruction on the brain, the liver, the stomach, the lungs, the kidneys, the blood corpuscles, and various other parts of the body. An anomaly presents itself here, for it is said that an eminent anatomist (Hyrti) could distinguish the brain of a drunkard, in the dissecting room, in the dark, by its *hardness;* and yet it is an equally well known fact, among medical men, that alcohol does produce a species of meningitis, or *softening* of the membranes of the brain.

Alcohol is *antiseptic:* it possesses the property of preventing fermentation or decay, and yet it is itself the result of fermentation and decay.

Alcohol is, to some extent, *anæsthetic:* this peculiarity can be observed in cases of chronic alcoholism, where the senses are perverted or lost. If taken in sufficient quantity, surgical operations may be performed almost without pain while the patient is under its influence. The two great anæsthetics, chloroform and ether, are both derived from alcohol.

Alcohol is extremely *volatile:* this fact enables us to detect the drinker by the odor from his breath.

Alcohol is an *irritant:* place a drop of even diluted alcohol in the eye, or upon a raw surface, and it will soon produce a most intense inflammation.

Alcohol is *narcotic:* after imbibition it first acts as an *excitant*, but in a short time it benumbs the sensibilities, and thus relieves the senses of fatigue temporarily. Persons who die from alcohol poisoning present all the appearance of narcotic poisoning.

Alcohol is a *stimulant:* a very powerful, but temporary, diffusible stimulant. Some authors argue truly, from experiments, that it does not increase, but lessens the strength.

GENERAL EFFECTS UPON MANKIND.

In fine, alcohol is the intoxicating ingredient in all spiritous liquors. Diluted, as in the ordinary whiskies, brandies, wines, etc., it temporarily stimulates and excites the system, renders the pulse full, gives an apparent energy to the muscles, and exalts the mental faculties. But as an article of daily use, as a beverage, as we shall see, no matter in what form it is taken, it is *always* detrimental, and produces the most deplorable results. It poisons the child in the mother's womb, when used by the mother during pregnancy, for *a drunken mother* will bring forth a drunken child, or what will almost certainly become a drunkard. It poisons the creature before it is begotten, because *a drunken father* will beget a child that will become a drunkard. Hence, *as a rule*, the children of drunkards become drunkards as certainly as two and two make four. Eminent opinions on this heredity will be shown further on. Of course, like all rules, there are exceptions to this rule; isolated cases, where, by strict guardianship or high moral training, the abyss is avoided. I think I may say, with a great degree of certainty, if we can find that a child was begotten during a debauch of either parent, that child will almost certainly become a drunkard.

ALCOHOL AS A POISON.

According to Stillé and other eminent authorities, alcohol is poisonous to *all* animals. Leeches wet with it die in two or three minutes; when partially immersed in it, that part of the body which the alcohol touches becomes paralyzed. If forty drops be injected under the skin of a frog, death takes place in one minute. Half an ounce, something over a tablespoonful, of strong alcohol was injected into the jugular vein of a dog, and it produced instant death by coagulating the blood. Dogs fed upon alcohol become very quarrelsome with other dogs, gradually refuse food, and die.

EFFECT ON THE STOMACH.

We frequently read in the daily press accounts of a sudden death, after drinking a quantity of liquor—say a pint of whisky. Dr. Taylor relates the case of a man who died in half an hour, after drinking a bottle of gin—something over a pint. Dr. Seaverns speaks of a child which died in twenty-four hours, after swallowing one ounce of rum. A few ounces of strong alcohol—say six ounces—taken into the stomach, and absorbed into the system, will kill a very strong man, in a very short time. Where these facts are known people wonder why Smith, Brown, and Jones don't die, as they are very hard drinkers. It is because that alcoholic liquors, used as a beverage, are composed of alcohol very much diluted with water. Ordinarily good whisky or brandy, if there can be anything good in that which is bad, contains about forty per cent to fifty per cent of alcohol, *i. e.*, they are about half water. But notwithstanding they are so much diluted, so powerful is the poison of alcohol that when taken into the stomach, even in this diluted state, congestion of the coats and vessels of that organ almost immediately ensues. How do we know that this action occurs? I answer, from experiments made in many cases, by eminent authorities, but especially by Dr. Beaumont, of the United States Army, in 1822, through an opening in the stomach, made by a gunshot wound, in the left side of a Canadian lad, named Alexander St. Martin, tearing away the integuments and muscles, perforating the stomach, leaving an aperture two and one half inches in circumference, through which the whole process of digestion, and the action of liquids and solids, could be studied. Thus it was proven by experiments, that when alcohol, in any form, was taken into the stomach, it produced congestion, *by acting as an irritant.* If there be food in the stomach when alcohol is taken, as was proven also by Dr. Monroe, of London, digestion is immediately stopped, until the alcohol is absorbed. The alcohol, being antiseptic, stops fermentation, hence stops digestion. And thus it is that an habitual user of alcoholic beverages *must* become a dyspeptic. The walls of the stomach become hardened, thickened; the peptic glands, which secrete the gastric juice, become atrophied, are rendered inactive, and the supply of the gastric juice, which is so essential to digestion, is materially diminished. It does more—it precipitates the pepsin from the gastric juice, and renders that fluid useless. In nearly all cases of *chronic* alcoholism we will find *inflammation of the stomach*, resulting in foul ulcers, and cancerous diseases of that organ. The functions of the stomach, in cases of this kind, are entirely suspended. The power to digest food, and every process of waste and repair, is weakened. The patient does not willingly take food; may not have taken any for days and weeks. If food is forced upon him the stomach rejects it. Nausea and vomiting are present. He cannot even retain water, except in very small quantities. Sometimes a large quantity of clotted blood is ejected. If the patient dies with *delirium tremens* a post-mortem examination will generally reveal the stomach black with mortification.

EFFECT ON THE NERVES.

The daily use of alcoholic drinks, *even in small quantities*, commonly known as "tippling," affects the nervous system detrimentally in many ways; the nerve cells and nerve fibers and muscular fibers are atrophied or wasted away; the principal organs become saturated, and we have fatty degeneration of the nerve and muscular cells and fibers, and other tissues of the body, resulting in paralysis.

The "rum blossom," or large, red, pimpled nose, is a well known evidence of chronic alcoholism; this condition is caused by paralysis of the nerves that keep the blood vessels of the nose in proper condition, thereby regulating the supply of blood to that part. When the nerves are paralyzed the blood vessels relax, become filled with blood, become engorged, congested; the nose grows too rapidly, and sometimes acquires an enormous development.

EFFECT ON THE BRAIN.

The brain in health is one of the most delicate organs of the human system; it is so soft that the bony skull is required to keep it in shape; the sharpest knife can scarcely cut it without tearing. This softness and fragility is necessary that it may the more readily receive and transmit impressions. The use of alcohol as a beverage changes all this. It has a special affinity for the brain, which absorbs more than any other organ, while it hardens the membranes which develop the nervous matter. Some high authorities take the ground that a once thoroughly intoxicated brain never fully recovers its original power. In health, as a rule, the brain is of a delicate pink color; by alcoholic stimulation it becomes a most intense red, which is produced in the same way as in the nose—by paralysis of the nerves controlling the blood vessels. When a drunkard's nose or face is red his brain is red; it is engorged and congested;. and so are his lungs, his stomach, his liver, his kidneys, and other organs of his body. His physical being is blushing for the manner in which he is outraging nature. When we reflect that the brain receives one fifth of all the blood in the body, we can readily understand that it participates more largely in the injury done by alcohol than any other organ in the body, with the possible exception of the liver. When the brain of a chronic inebriate becomes hardened, it is pickled in alcohol precisely as a student pickles the brain of a dead subject, to harden it before it can be dissected. When the brain is thus saturated with alcohol, the patient is liable to have one of many diseases, including epilepsy, apoplexy, paralysis, vertigo, meningitis, or softening, delirium tremens, heart disease, dropsy, diseases of the stomach, bowels, liver, kidneys (which become fatty or waxy), and finally to wind up with insanity or death.

EFFECT ON THE LIVER.

Alcohol when taken into the stomach is rapidly *absorbed;* it is not digested, but is absorbed, and much of it is carried to the liver by the portal veins; it changes the color of the bile from yellow to green, and sometimes even to black. In chronic cases, the liver is frequently increased to double and even treble its natural size, even to weigh from twenty to thirty pounds. Next to the brain, the liver takes up the largest quantity of alcohol. Occasionally, by some peculiar idiosyncracy, in the chronic drinker the liver shrinks and assumes a peculiar appearance, known as hob-nail liver. By alcoholic abuse, it becomes the seat of many characteristic alterations—it is enlarged, it is fatty, it is nodulated, it is contracted, it is hardened (or cirrhosed), or presents the appearance of yellow wax. In many cases the portal veins become obliterated by inflammation, and this results frequently in abdominal dropsy.

EFFECT ON THE HEART.

The heart, when in a healthy condition, as is generally known, is about the size of an ordinary fist, and weighs about eight or nine ounces. It is a hollow muscle, which, by contraction, propels the blood to the remotest parts of the extremities. The amount of work performed by this little organ is enormous; it beats about one hundred thousand times per day, and exhibits a strength at each pulsation equal to ten pounds. Now, as a healthy man's heart beats about seventy-two times a minute, four thousand three hundred and twenty times per hour, or one hundred and three thousand six hundred and eighty times per day of twenty-four hours, its lifting power is equivalent to the enormous sum of one million thirty-six thousand eight hundred pounds, or more than five hundred tons per day, one foot high! Several causes, such as rapid walking, running, lifting, mental labor, excitement of any kind, may increase the heart's action, and thereby bring an extra strain upon it, and produce more or less temporary or permanent injury. It can, therefore, be readily understood, that it is of the utmost importance to preserve the heart's integrity, and thus insure the safety of the rest of the body. If we turn from the healthy man and examine the heart of a chronic inebriate, we will find that his heart (like his nerves and muscles) is subject to fatty degeneration: it becomes loaded with fat, upon its exterior and in its walls. This increased weight, of course, greatly weakens its action, as may be readily discovered in the habitual drinker, whose pulse is weak, feeble, intermittent, and whose extremities are generally cold, because the heart is unable to do the work required. All physicians know that alcoholism is a common cause of heart disease. The muscular tissue is turned into fat, and such a person, if much excited or frightened, or caused to run a distance, will suddenly die and be precipitated into a drunkard's grave, because the heart is enfeebled and cannot lift its five hundred tons per day. It is stated on high authority (Steele's Hygienic Physiology), that two ounces of alcohol (which is equal to about two ordinary drinks of whisky or brandy), increases the heart's action six thousand beats in twenty-four hours; which is an increase of work for the heart equal to the lifting of a weight of seven tons one foot high! After the feeling of stimulation at the outset of a debauch has passed away, the drinker feels a terrible reaction, a physical languor, a letting down; the heart flags, the brain and muscles are exhausted, and rest and sleep are imperatively demanded. The machinery is nearly run down—the patient must have sleep or he dies. After a long continued use of alcohol, or where a large quantity has been used in a short time, we find fatty degeneration of the muscular fibers of the heart, so that it loses its power to drive the blood to the extremities, and very soon "fails to respond to the spur that has urged it on to ruin." This fatty degeneration from alcohol is also to be found in the muscles, liver, nerves, and kidneys, in the form of fat cells, *unhealthy fat cells*, which show an insufficiency of oxygen in the blood. When you see a flushed face or a bloodshot eye in a person whom you know indulges in alcoholic liquors, even in a moderate way, you may put it down as a fact that these superficial appearances indicate *positively* the condition of the internal organs. The delicate linings of the brain, heart, stomach, liver, and lungs, are congested and are the color of the blushing cheek. When the alcoholic habit has become chronic, the color becomes permanent, and the discolored, blotched skin reveals the condition of the internal organs. Owing to the affinity of alcohol for water, all the membranes become somewhat dry, thick, and hard: they shrink upon the sensitive nerves, causing pain; their thickness and hardness stiffen the joints and make the muscles weak and flabby, and in this way every organ in the body feels the change.

EFFECT ON THE BLOOD.

The affinity of alcohol for water causes a burning thirst to all drinkers, hence they generally use large quantities of liquids, mostly beer; this has a tendency to dilute the blood, which flows more freely from a wound in the drunkard; his blood does not coagulate like healthy blood, and this renders an accident or surgical operation very dangerous to such persons. Sometimes this condition of the blood is reversed in drunkards who use only *strong* liquors, which tend to coagulate the blood in the smaller vessels; in that case there is great liability to an obstruction to the flow of the vital current through the heart, and it may form clot in the heart, producing instant death, or it may cause brain disease, and lay the foundation of paralysis or apoplexy. The blood corpuscles in a healthy, temperate man, are wonderfully symmetrical, being flattened, concave discs, and give color to the blood. They adhere together in groups, and resemble piles of coin. But the use of alcohol destroys all their symmetry, and causes them to become shriveled, irregular, and mottled, and their power to hold and carry oxygen, which is their peculiar province, is very much lessened. Dr. Carpenter, the distinguished physiologist of England, recently deceased, says, "the effect of alcohol on the blood is observed when diluted to the extent of one part in five hundred."

EFFECT ON THE LUNGS.

The effect of alcohol upon the lungs is very apparent: it prevents the oxidation of the blood, by interfering with the red corpuscles, in their task of carrying oxygen. Anything that checks this oxidation (to coin a phrase) of the blood, or hinders the deposition of new matter, diminishes the vital force. As was remarked above, even so small a quantity as one drop of alcohol to five hundred drops of the blood, will materially check the absorption of oxygen in the lungs. The cells being unable to take up oxygen, retain their carbonic acid, and the blood returns to the body from the lungs uncleansed, carrying back into the system, according to Dr. Hinton, as much as thirty to fifty per cent of the refuse matter, which the body has tried to throw off; and thus the patient is slowly poisoned, as the lungs no longer furnish properly oxygenized blood. It is well known that a person deprived of oxygen—the life-giving oxygen—cannot live; and so, the chronic inebriate, being deprived of the quantity of oxygen necessary for a healthy person, is dead to that extent. He is weak, becomes emaciated, and is peculiarly liable to disease, especially epidemic diseases. I have had a great deal of experience with drunkards, and I give it as my opinion, that the drunkard is at all times, and under all circumstances, more predisposed to death than the temperate man. This is a well known fact among medical men, but it will serve my purpose to quote one distinguished authority, Dr. Huber, who saw, in one town in Russia, two thousand one hundred and sixty persons die of cholera, in twenty days. He says: "It is a most remarkable circumstance, that persons given to drink, have been swept away like flies. In Tiflis, with twenty thousand inhabitants, every drunkard has fallen, *all are dead*, not one remains!"

There is also a peculiar form of consumption of the lungs, known as alcoholic phthisis, caused entirely by the long continued and excessive use of alcohol. It generally appears late in life, attacking those who have had splendid constitutions, but it soon reduces them to mere ghastly shadows of their former selves, and terminates in death, as it is incurable.

EFFECT ON THE KIDNEYS.

As with the heart and liver, so with the kidneys; they undergo fatty degeneration, from the effects of alcohol; the cells become filled with fat, and are unable to separate the waste material which comes to them to be thrown off, and it is, consequently, returned to the circulation. The membranes of the kidneys become so diseased as to allow the albuminous part of the blood to filter through, and thus the body is robbed of one of its most valuable constituents. The experience of medical men has made it an indisputable fact, that *three fourths* of all the cases of *Bright's disease of the kidneys*, occur in drunkards, or drinkers of alcoholic liquors.

ALCOHOL IS NOT A FOOD.

So far as known alcohol contains no nutrient property. And yet I have known well authenticated cases where men have *apparently* existed on alcohol, partaking of no food whatever, for six weeks at a time. They were really consuming their own bodies. Professor Flint says: "That alcohol is incapable of forming any part of the body, is admitted by all physiologists. It cannot be converted into brain, nerve, muscle, or blood." Professor Steele says: "If you take bread or beef into the healthy stomach, nature welcomes its presence; the juices of the system dissolve it, and transform it for the use of the body. A million tiny fingers called lacteals and veins, grasp it, work it over, and carry it into the circulation. The blood carries this bread and beef, or other healthy food, in its new form, throughout the system, wherever it is needed, to repair or to build up the house you live in. It is no longer bread or beef, it has become muscle, or bone, or blood, it has given you new life and strength. How different when alcohol is taken. It receives no welcome, nature treats it as a poison, as a brave gentleman treats an enemy who intrudes upon his household: nature seeks to rid herself of the intruder as soon as possible. Every effort is made by pouring the juices into the stomach, to dilute the alcohol, and thereby weaken its power. All the servants of the body, the stomach, the lungs, the kidneys, the perspiration glands, combine and set to work, to throw the enemy out of the body. So far as known, the alcohol thus rejected, is entirely unchanged. Nature has no use for it.

ALCOHOL AND BEER.

Many persons regard beer as nutritious, because it contains little alcohol, and because it makes fat. But what sort of fat does it make? Look at a piece of suet, that is the kind of fat beer makes! It does not make muscle, or bone, or nerve, or sinew. It does not give strength. But it does make you feel dull, and makes the circulation sluggish; and thus the waste matter of the system is not promptly carried off. The muscles are loaded with this fat, the skin is puffed out, and the beer drinker *looks* plump, and thinks the beer is doing him good. But he is most wofully deceived. It is not the plumpness of youth, which comes of good blood and healthy juices. Beer drinkers suffer generally from enlargement of the liver, which often grows to enormous size. Some nursing mothers use beer because it makes them feel temporarily better; the small quantity of alcohol in the beer has lied to the mother, and the little innocent child which nurses the drugged milk from the mother's breasts, is so good and quiet, because it is boozy from the alcohol in its mother's milk. Many a future drunkard is made in this way.

It does not seem to have occurred to many parents, that the swill milk which does the little innocents so much harm, and carries them off so rapidly, is the product of breweries and distilleries.

And so in "high" life (which in the succeeding generation becomes very "low life"), a man and his wife attend many dinner parties, or other festive gatherings, where wines and liquors are freely partaken of. The husband drinks, the wife drinks; he is affected considerably; she is affected some; both are under the influence of alcohol; the system is heated to a passionate glow; a pregnancy follows; the result is a future drunkard. And it is thus that our "so called" *best families* are bringing forth a race of drunkards, idiots, or insane, for the future, and this will continue until every kind of alcoholic stimulant is prohibited from general use as a beverage.

HEAT.

Chronic inebriates have a thousand and one excuses for drinking alcoholic liquors; one of the most common in cold climates, or in Winter time, is, that it imparts heat throughout the system. If this be so, it is of the most temporary character. There is, probably, a little flush on the surface, caused by the warm blood that is being sent throughout the body, in consequence of the enlargement of the capillaries, and the increased action of the heart. *But, according to the best authorities, no increased heat is really developed.* On the contrary, the forcing of the blood rapidly to the surface causes it to cool faster, and a reaction soon follows; the drinker becomes chilly, and by experiments with a delicate thermometer, under the tongue, it will show a fall in temperature, sometimes of two degrees below the standard temperature of the body. Several hours are sometimes required to restore the normal temperature.

Dr. Hayes, the distinguished Arctic explorer, says: "While fat is absolutely essential to life in arctic countries, *alcohol is positively injurious.* I have known strong, able-bodied men to become utterly incapable of resisting cold, in consequence of the long continued use of alcoholic drinks." Dr. N. S. Davis, of Chicago, in his experiments to determine the effects of different articles of food upon the temperature of the body, says: "During the digestion of all kinds of food the temperature of the body is increased, but when alcohol is taken, the temperature begins to fall, within half an hour, and continues to decrease for two or three hours, and is in exact proportion to the quantity of alcohol taken."

STRENGTH.

The use of alcohol deprives a man of his strength, and unfits him for severe bodily exertion. All those athletes who are in training for running, rowing, wrestling, boxing, or other contests where strength is required, are prohibited the use of alcoholic liquors. Dr. Richardson, before alluded to, proved this loss of strength, by experiment, most conclusively. He placed a graduated weight on the hind leg of a frog, and, by means of electricity, he stimulated the muscles of the frog to their utmost power of contraction, and thus found just how much the frog could lift in its sober condition.

He then administered alcohol, and, although he applied the electric current freely, the response of the muscles became more and more feeble as the alcohol took effect, until at last the frog could raise less than half the amount it lifted when sober.

In the human being we see this loss of muscular strength, by the use of alcohol, in various forms. As the drinker becomes drunk his lower lip falls first, then the muscles of the lower limbs weaken and he staggers, his steps are uncertain and he falls, utterly devoid of strength, a helpless mass of humanity.

HEREDITY.

I am often asked, "Do children inherit the desire for alcoholic stimulation from their parents?" Invariably my reply is, "Yes." *There is no possible doubt of it*, and I say this advisedly and thoughtfully, after having treated and conversed with thousands of cases of alcoholism, in both sexes, of all nations and colors, old, young, and middle aged. We inherit from our parents our features, our physical vigor, our mental faculties, and something of character. Sometimes a generation is skipped, but the qualities will reappear in the next—the virtues as well as the vices—but most certainly the vices. Dr. Oliver Wendell Holmes says: "We are omnibuses in which all our ancestors ride." Dr. Willard Parker, the late eminent New York physician, says: "There is a marked tendency in nature to transmit all diseased conditions. Thus, the children of consumptive parents are apt to be consumptives. But of all agents, alcohol is the most potent in establishing a heredity that exhibits itself in the destruction of mind and body." Its malign influence was observed by the ancients long before the production of whisky or brandy, or other *distilled* liquors, and when *fermented* liquors or wines only were known. Aristotle says: "Drunken women have children like unto themselves." Plutarch says: "One drunkard is the father of another." The drunkard by inheritance is a more helpless slave than his progenitor, and his children are more helpless still, *unless on the mother's side there is untainted blood.* For there is not only a propensity transmitted, but an actual disease of the nervous system. Dr. Howe, of Boston, a most distinguished authority on this subject, says, that of three hundred idiots in Massachusetts, at the time he was writing, *one hundred and forty-five were the children of drunken parents.* Dr. Madden, physician to the "Hospital for Sick Children," Dublin, saw many cases of inherited inebriety; also, one case of delirium tremens in a boy of eight years of age, son of a drunken mother. Dr. Barlow, of London, physician to the "Children's Hospital," in Great Ormond Street, says he has seen several well marked cases of hob-nail liver and dropsy in children from the use of alcohol; all children of drunken parents.

INSANITY IS PRODUCED BY ALCOHOL.

There can be no longer any doubt in the minds of intelligent medical men and laymen, who have made somewhat of a study of alcoholism, that it is productive of insanity in a remarkable degree, both directly and indirectly, by softening of the brain, family troubles, etc. Alcoholism is given as the cause in twenty-one per cent of insane cases received at the Royal Asylum, at Morningside, London. In Nottingham Hospital for the Insane, twenty-five per cent is accorded to alcoholism. Alcohol is said by some authorities to cause insanity by its toxic action on the brain, changing its organic composition, and deteriorating its functions—thus we have insanity caused directly by alcohol.

DRUNKENNESS IS A DISEASE.

Alcoholism, if not a disease in itself, certainly produces many diseases, and where inherited undoubtedly becomes a disease *per se.* Dr. Boddington, an eminent English authority, declares that all habitual drunkenness *is a disease*, and this coincides with my own experience. The "American Association for the Cure of Inebriates," composed of Superintendents of inebriate asylums, has announced that "*intemperance is a disease.*" How astonishing it is, then, that our Federal Government, our State Legislatures, and our municipal bodies, pass laws, granting permission for the sale of alcoholic beverages, well knowing that such beverages disease the very flower of our country, male and female, and drag tens of thousands to the insane asylums and the grave every year. They certainly would not pass laws to disseminate yellow fever or cholera, and yet alcohol carries off many more than either. When a man or a woman becomes a confirmed, habitual drunkard; when he or she develops an irresistible, uncontrollable morbid impulse to drink alcoholic stimulants, *they are suffering from a disease* known to medical men as *dipsomania*—alcoholism. In fact, they are insane on the subject of drink. And when a man or woman cannot control their appetite for drink, they should be considered of unsound mind, and be taken care of by the authorities, and kept from doing harm to themselves or others, the same as other dangerous persons. There is no telling when such a person may become violent. They are always *dangerous*, no matter how mild they may appear to be.

HOW ARE WE TO COMBAT AND OVERCOME THIS GREAT EVIL?

The State should take action *at once*, by enacting laws to *prohibit* the sale of alcoholic liquors as a beverage. Some will argue that this cannot be done generally, because it interferes with trade. It is not my province in this paper to argue that no interest should be permitted to exist which aims, directly or indirectly, at the life or happiness of the citizen. If prohibition is a step too far in advance, then the State and municipal authorities should enact stringent laws, with heavy penalties attached, curtailing the sale of liquors by heavy license, and by greatly decreasing the number of drinking places.

The State should establish asylums for drunkards, under the management of those having great experience, and the Courts, and Commissioners of Lunacy, should be authorized to commit chronic drunkards to these asylums, for not less than one year, and in some cases for life. The first commitment should be for one year, during which time the patient should undergo a course of treatment for this malady. At the end of his term he should be released, but if he resumed his former habits of intoxication he should be again committed, for two years. If committed a third time it should be for three years, and if a fourth time, *it should be for life;* because a patient who will not reform in six years will not reform at all. The patients in these asylums should be made to reimburse the State for their expenses, either by paying for their keep, or by laboring at some trade or employment, so as not to be an incumbrance on the State. The money for the support of these institutions should come from those benefiting by the sale of alcoholic liquors; and there should be provision made in the law so that a certain amount, say one fourth, of the patient's earnings should go to the State, one fourth to be retained for him, and paid to him on discharge, and one half to his family, if he has any; if no family, then one half to the State and one half to the patient on discharge. The State, the patient, and his family would benefit greatly by such a course. Crime would decrease, the death rate would decrease, and human happiness would be greatly increased. Time, restraint, moral influences, the exercise of strong will power, and constant employment, are the means, with proper medicines and discipline, by which drunkenness is to be cured. Of course, *prohibition* would be the best of all means to prevent excessive drinking, and, at the same time, to decrease poverty, crime, disease, insanity, and death; but so long as Federal, State, and municipal governments license the sale of alcoholic liquors, which license gives the right to make drunkards, so long will we have drunkenness and all of its horrible attending evils. The State protects its citizens from the thief, from the gambler, from the courtesan; it protects them from other poisons by enacting laws to prevent their miscellaneous sale; why not protect them from alcoholic poison, which, in this country, consumes hundreds of millions of dollars annually, and kills tens of thousands of the fairest in the land?

THE PROPHYLAXIS OF TRICHINOSIS.

By Albert Abrams, M.D., San Francisco.

It would be highly injudicious were we to attempt, in this article, to encompass the entire literature in reference to *trichinosis*, for such an endeavor would only prove to be a mere repetition of all that is already contained in our modern text-books; but the preventive measures adopted, especially in Germany, for abating the propagation of this dire disease should merit our earnest consideration; and for the purpose of detailing these means, which have not received due publicity, this article was written. The prophylaxis of this disease signifies in reality our treatment, for when the disease has once manifested itself in all its virulence, our treatment is purely symptomatic. True, when we are so fortunate as to encounter the affection in its incipiency, prior to the time when the trichinæ are divested of their capsules by the gastric juice, it is then possible to check the progressive tendency of the disease by the use of emetics and drastic cathartics. But let us suppose that the trichinæ have already migrated to their usual habitat, the muscles; then all attempts to destroy the entozoa in these situations will be in vain. Notwithstanding the vaunted efficacy of such preparations as the *picro nitrite of potash*, *benzine*, *santonin*, *pancreatine*, etc., empiricism has taught us their utter incapacity. Nor must we suppose that death must inevitably follow the introduction of trichinæ into the economy, or even that infection must result, for it is known that almost every person can tolerate the presence of a limited quantity of trichinæ in the muscles without any appreciable reaction; as is repeatedly demonstrated on making necropsies by finding them in the muscles of individuals who, during life, have manifested no decided symptoms of trichinosis.

Two objects are to be attained in the prevention of trichinosis: to guard against infection from the ingestion of trichinised meat, and to prevent the dissemination of the disease among swine. To accomplish the former object, no pork or its various preparations should be eaten without having been previously submitted to a thorough microscopical examination for trichinæ. Laws should be enacted rendering such an examination obligatory. In this respect most stringent laws have been established in Germany, tending, as far as all scientific accuracy is concerned, to protect the people from infection. It has been proven by accurate statistics that since the inauguration of this obligatory microscopical examination (*trichinenschau*) in that country, the epidemics of trichinosis have not only been decreased in number, but even in sporadic cases the severity of infection has been materially mitigated. It is likewise true that such an examination does not always yield positive results, especially in those instances where the trichinæ are few in number; but this certainly is no argument by which this obligatory microscopical examination might be opposed.

A few of the laws governing the inspection of swine in Germany can be briefly detailed. Three officials are appointed by the municipal authorities for such a purpose, viz.: the Superintendent of Inspection (*Fleischschau Vorsteher*), Meat Inspector (*Fleischbeschauer*), and an individual whose duty it is to extract the necessary samples of meat, whom we shall call the Sample Taker (*Probenehmer*). No hog butchered within the municipal boundaries can be removed from the slaughter-house without having been first submitted to a microscopical examination and declared free from trichinæ. Within twelve hours after slaughtering the animal it must be reported to the Superintendent, who directs to the locality a Sample Taker, who personally extracts pieces of muscle from the following situations: diaphragm, abdomen, thorax, and larynx. These specimens he packs in a suitable case adapted for this purpose. The muscles primarily invaded are the diaphragm, intercostal, cervical, ocular, and laryngeal muscles. The only striated muscle exempt from the invasion is the heart. In the muscles of the extremities the trichinæ are less abundant in direct proportion as we recede from the trunk. They are usually found at the tendinous attachments of the muscles, which is explained by the fact that owing to the comparative density of the tendons, their tendency to wander is prevented. The Inspectors are well versed in the preceding facts, and practically apply their theoretical learning in the pursuit of their profession, for in Germany it constitutes a distinct means of livelihood. After the samples are returned to the Superintendent's office, at least six sections of each sample are made, and all are carefully examined with the microscope. Should the meat be found to contain no trichinæ, then a certificate to that effect is issued and the hog receives the official stamp. Should the contrary be the case, then the hog is condemned and disposed of as follows: It is subjected for at least twelve hours to a temperature of 120° C. After this thorough cooking process is accomplished, the fat can be used for any purpose, at the option of the owner, but the meat, bones, and viscera only for fertilizing purposes. The vessels used in cooking condemned animals must be kept in a thoroughly isolated situation. All the details enumerated must be recorded in suitable books kept for this purpose, and always open for inspection to the proper authorities. It will suffice to say that any dereliction of duty on the part of the Inspectors or owners in implicitly following the strict letter of the law, is severely punished.

The methods in vogue for the examination of trichinized meat are various, and will depend in many instances on contingencies. Only in the minority of instances can the microscope be dispensed with, and then only when the trichinæ have become encysted and infiltrated with calcareous salts. Under such conditions they are visible to the unaided eye. Hartnack has specially constructed microscopes for the examination of trichinæ, and are used almost exclusively by the professional meat inspectors in Germany. When special occasions require, the muscular tissue can be extracted from the living animal, either by directly cutting down to the tissue or by harpooning. The specimen obtained in either way is carefully teased on an object-glass, after the addition of a few drops of a one per cent solution of sodium chloride. Examining sausage and other preparations of pork for trichinæ is a more difficult procedure, and an inordinate amount of patience is often required.

Only recently I had occasion to examine some sausage, sent to me by Dr. William S. Groton, of Susanville, which he suspected contained trichinæ, inasmuch as certain members of a family were afflicted with a train of symptons resembling trichinosis. The microscope sustained the doctor's diagnosis, and in this instance, although two hundred sections were made with the microtome, in only eight per cent of all the sections examined could trichinæ be found. Dr. Tyrrell has since then kindly sent me a piece of the same sausage, containing trichinæ in about fifty per cent of all the sections examined. This case I deem to be of historical importance in California, and I am assured by Dr. Groton that it will receive publication.

The next step in the prophylaxis of this disease will enter into a brief consideration of the precautionary measures adopted by individuals against infection. Meat should not be eaten without having first undergone a thorough cooking process. An argument usually urged in behalf of thorough cooking is, that in those countries where the inhabitants partake largely of raw meat trichinosis is more prevalent. But this is not the only factor concerning the etiology of the disease in question, inasmuch as the hog in different countries is infected in a greater or less degree: *e. g.*, in Switzerland, France, and England, trichinosis in man and animals is rare. Cooking in order to effectually render trichinized meat inert must be very thorough, for, according to the experiments of Fiedler and others, such meat when exposed for many hours to a temperature of 160° F. was in many instances incapable of killing the entozoa. Trichinosis is less frequent in northern than in southern Germany, owing no doubt to the more thorough cooking process by which meat is prepared in southern Germany.

Vallin has recently demonstrated that the encysted are more difficult to kill than the free trichinæ. He also determined that after boiling about three pounds of meat for one hour, the interior of the meat attained a temperature of 122° F., and only after three hours further boiling, 212° F. The experiments of Gibier prove that extreme cold will likewise destroy the trichinæ. Salting and drying of trychinised meat does not always militate against infection, however thoroughly done. Krabbe found that when ham containing trichinæ was introduced into a five and one half per cent solution of sodium chloride, they were found to be alive fifteen days after, and other observers record a much longer time. To prevent the dissemination of the disease among swine, it is necessary to provide for almost pedantic cleanliness in maintaining the abode of these animals in a proper sanitary condition. They should be fed on the most cleanly food, and provision must be made against the abominable custom of allowing them to be fed on the bodies of dead swine, a custom so prevalent in America. Under such circumstances, a more potent means of transmitting infection could not be devised.

It would be folly to resent the recent action of the German Government, in prohibiting the importation of pork and its various preparations from America, when viewed in a thoroughly scientific light. The following statistics need no comment: In 1877, Eulenberg examined two million fifty-seven thousand two hundred and seventy-two slaughtered swine in Prussia with the view of ascertaining the extent of trichinosis among them. Only seven hundred and one were infected, *i. e.*, about 0.04 per cent. Billings, in 1880, with a like object in view, examined in Boston, two thousand seven hundred and one, and found one hundred and fifty-four infected, *i. e.*, 5.7 per cent.

Rats infesting the localities occupied by swine should be strenuously exterminated. How the hog becomes infected is a question often discussed, and it would seem rather difficult, in the present state of our knowledge, to arrive at any positive conclusion. A few competent observers maintain that trichinosis is only peculiar to the hog, and that infection among swine is the result of the healthy animals consuming the excrement of the infected ones. Other authors dissent from this view, and as strongly contend that the rat is the primitive host of the trichina. As is known, swine often feed on rats, and it is claimed that in this way the former animals become infected. Still other observers maintain that trichinosis in the rat is due to its consuming the dung of infected swine. The more recent authorities hold the view that the rat infects the hog, without wholly denying the possibility of the transmission of infection from one hog to another. It is to be sincerely hoped that State protection will be afforded the laity against the invasions of this dread disease, and that popular treatises will be distributed, and lectures instituted among them, in reference to trichinosis. Thus science will achieve her greatest triumph—the prevention of disease.

SEASONAL RAINFALL—1885-86.

(Compiled by Lieut. W. A. Glassford, Signal Corps, U. S. A., Assistant in charge Pacific Coast Division, Signal Service.)

Table showing the Rainfall and Melted Snow for each Month during Season 1885-86.

Stations.	County.	July	August	September	October	November	December	January	February	March	April	May	June	Total	Names of Observers.
California.															
Crescent City	Del Norte	.00	.00	1.96	3.77	31.93	26.26	18.28	8.19	9.00	8.59	1.50	.11	109.59	D. S. Sartwell.
Yreka	Siskiyou	.58	.00	.49	.29	6.98	2.10	4.03	.91	.74	1.76				Dr. Louis Autenreith.
Fort Jones	Siskiyou	1.16	.01	.83	.53	10.24	3.26	7.22	1.32	1.33	3.26	1.79	.03	30.98	J. Titcomb.
Fort Bidwell	Modoc	.38	.00	.10	.73	8.22	3.74	5.91	1.22	.72	2.20	1.44	.78	25.44	Dr. Geo. M. Kober, U. S. A.
Orleans	Humboldt	.00	.00	.00	.96	18.82	9.73	11.61	2.41	3.45	8.93	1.69	.00	57.60	Henry P. Scott.
Fort Gaston	Humboldt	.12	.00	.96	.31	24.54	11.56	15.02	5.29	2.38	9.23	2.64	.00	72.05	Dr. H. I. Raymond, U. S. A.
Blue Lake	Humboldt	.00	.00	.93	1.65	31.99	13.73	16.52	6.30	6.51	12.97	2.83	.00	93.43	I. H. Blake.
Hydesville	Humboldt	.00	.00	1.05	1.12	18.37	9.31	8.73	3.56	3.13	9.15	1.28	.00	55.70	E. T. Foss.
Cape Mendocino	Humboldt	.32	.82	1.59	1.11	7.34	2.71	4.61	1.37	2.08	5.43	.35	.04	27.77	Signal Service, A. P. Leavitt.
Humboldt	Humboldt	.00	.00	1.57	1.55	13.56	7.00	5.93	1.97	3.15	6.53	1.18	.00	42.44	L. H. Dep't, W. J. Humphreys.
Weaverville	Trinity	.00	.00	.44	.11	16.56	6.78	8.71	.80	2.94					Geo. E. Noonan.
Delta	Shasta	.00	.00	.00	.60	29.38	12.94	9.95	.50	3.52	10.19	8.16	.00	75.24	S. P. R. R., G. M. Taylor.
Redding	Shasta	.00	.00	.—	.—	11.90	9.00	10.30	.—	2.90	8.41	2.32	.00	44.83	S. P. R. R., M. J. Sweeny.
Anderson †	Shasta							28.13	.38	1.08	5.42	2.15			Dr. Albert Fouch.
Susanville*	Lassen								.92	3.00	1.15	1.32	1.22	19.82	T. B. Sanders.
Red Bluff	Tehama	.05	.00	2.91	.10	17.05	3.86	4.85	.18	1.31	4.12	.73	.—	35.16	Sig. Service, R. L. Sebastian.
Tehama	Tehama	.00	.00	.48	.—	10.42	3.00	4.08	.00	.98	4.00	.18	.00	23.14	S. P. R. R., W. P. Ferguson.
Corning	Tehama							5.68	.00	1.41	3.45	.58	.00	26.92	S. P. R. R., W. T. Jewell.
Chico	Butte	.00	.00	.30	.27	8.99	5.49	4.44	.75	2.29	4.17	.36	.00	26.99	S. P. R. R., H. B. Davidson.
Oroville	Butte	.—	.00	.20	.00	11.27	5.53	5.17	.36	2.70	5.48	.50	.00	31.21	Captain Hiram Arents.
Orland	Colusa	.00	.00	.22	.00	9.41	3.03	4.45	.50	1.01	2.70	.64	.00	21.96	S. P. R. R., J. R. Ballard.
Willows	Colusa	.00	.00	.30	.30	3.37	4.04	.00	.35	2.45	.00	.00	.00	18.09	S. P. R. R., C. R. Wickes.
Princeton	Colusa	.00	.00	.12	.60	7.21	4.78	3.91	.17	.92	3.53	.35	.00	21.59	David Bentley.
Little Stony	Colusa	.00	.00	.00	.27	13.29	3.51	3.72	1.04	1.10	3.89				C. M. Polley.
Fout's Springs	Colusa	.00	.00	.00	.20	19.43	4.85	9.29	.20	1.65	5.01	.50	.—	41.13	John F. Fouts.
Colusa	Colusa	.00	.00	.02	.79	7.69	3.98	4.57	.20	.64	3.65	.20		21.74	J. D. McNarry.
Williams	Colusa	.00	.00	.18	.70	6.51	3.10	3.83	.00	.89	3.01	.00	.00	18.22	S. P. R. R., Geo. A. Stone.
College City	Colusa	.00	.—	.05	.91	8.79	3.55	1.64	.04						Dr. Albert Fouch.
Laytonville	Mendocino	.00	.00	.04	1.07	18.91	7.45	9.35	.30	3.43					Remington and Viers.

Westport	Mendocino	.00	.00	1.76	1.67	19.75	7.50	5.79	1.35	3.81	7.77	2.53	.00	31.93	E. S. S. Root, M.D.
Mendocino	Mendocino	.00	.00	2.07	2.40	24.31	10.70	10.50	1.51	4.71	10.73	2.07	.00	69.00	Charles W. Denslow.
Ukiah	Mendocino	.00	.00	.15	.53	19.24	5.43	9.74	.23	2.96	6.43	.98	.00	45.69	George McCowen, D.D.S.
Point Arena	Mendocino	.00	.00	.67	.99	15.64	9.90	7.70	1.19	5.61	7.47	1.70	.00	50.87	Lt. H. Dept., J. C. Ryan.
Marysville	Yuba	.00	.—	.00	.—	8.23	3.95	3.96	.55	1.45	3.96	.23	.00	22.33	S. P. R. R., G. H. Baird.
Nevada City	Nevada	.00	.00	1.62	.00	21.55	6.77	13.66	1.54	6.92	12.49	1.23	.00	65.78	J. E. Brown.
Truckee	Nevada	.00	.25	.47	.00	6.95	2.22	7.08	.50	2.90	1.78	.60	.56	23.31	S. P. R. R., F. Champion.
Bowman's Dam	Nevada	.00	.00	1.26	.—	24.96	8.66	17.84	2.99	7.24	13.22	3.20	.00	79.37	W. H. Radford.
Boca	Nevada	.00	.00	.06	.60	2.40	2.53	8.35	.85	.44	1.30	.50	.00	16.27	S. P. R. R., Jas. H. Lanyon.
Grass Valley	Nevada	.00	.00	2.65	.00	19.27	6.36	12.40	1.43	4.83	11.38	1.09	.00	59.41	W. Lautzenheiser.
North Bloomfield	Nevada	.00	.00	2.55	.—	20.23	7.98	13.49	1.78	2.18	12.26	1.15	.00	61.62	W. H. Radford.
West Butte	Sutter	.00	.00	.18	.56	7.45	3.65	4.75	.70	1.25	4.19				A. S. Noyes.
Nicolaus	Sutter	.00	.00	.—	.—	9.34	5.03	5.32	.49	1.50	4.93	.15	.00	26.76	A. Pendleton.
Kono Tayee	Lake	.00	.00	.00	.23	15.37	3.51	5.61	1.36	2.00	1.30	.61	.00	29.99	J. K. Joan.
Middletown	Lake	.00	.00	.15	.54	19.42	6.60	13.61	.32	1.71	8.05	1.64	.00	52.01	Leon Lobe.
Emigrant Gap	Placer	.00	.00	.53	.00	18.69	7.38	18.28	1.97	6.90	11.91	2.73	.—	68.42	S. P. R. R., Geo. Slusher.
Cisco	Placer	.00	.00	.50	.00	17.05	4.87	14.55	2.40	7.40	7.50	1.45	.00	55.72	S. P. R. R., J. D. McCloud.
Summit	Placer	.00	.—	.05	.00	13.60	3.00	13.90	1.40	7.80	6.40	.95	.00	47.10	S. P. R. R., H. Wales.
Colfax	Placer	.00	.00	.62	.00	15.48	6.77	12.17	.34	3.69	10.86	1.08	.00	51.01	S. P. R. R., L. Richardson.
Auburn	Placer	.00	.00	.64	.00	15.24	4.05	8.25	.00	4.10	9.38	.65	.00	42.31	S. P. R. R., Mrs. Geo. Willment.
Rocklin	Placer	.00	.00	.03	.00	9.32	3.96	5.84	.34	3.61	4.61	.10	.00	27.81	S. P. R. R., James Waddell.
Towles	Placer	.00	.00	.80	.00	14.40	7.00	9.80	.50	5.10	2.30	.00	.00	39.90	S. P. R. R., Allen Towle.
Georgetown	El Dorado	.03	.00	1.16	.00	21.77	7.03	18.32	1.16	7.75	15.04	1.76	.06	73.08	C. M. Fitzgerald.
Placerville	El Dorado	.00	.00	.55	.00	15.97	5.22	13.03	1.15	5.22	11.75	1.24	.50	54.63	Samuel Hale.
Shingle Springs	El Dorado						4.99	10.77	.69	3.84	9.51	.71	.—	42.08	M. Phelps.
Dunnigan	Yolo	.00	.00	.05	1.45	10.47	3.68	8.37	.00	1.69	3.61	.18	.00	29.50	S. P. R. R., D. R. Nason.
Davis	Yolo	.00	.00	.05	.00	7.87	4.56	5.32	.20	1.70	4.75	.05	.00	24.50	S. P. R. R., J. H. Sproule.
Woodland	Yolo	.00	.00	.00	.20	8.70	3.75	4.78	.00	1.31	4.10	.00	.00	22.84	S. P. R. R., P. W. Phillips.
Winters	Yolo	.00	.00	.00	.00	8.74	4.74	5.95	.14	1.77	3.90	.16	.00	25.40	G. W. Yount.
Knights Landing	Yolo	.00	.00	.00	.00	8.00	4.93	5.53	.00	1.37	4.25	.00	.00	24.08	S. P. R. R., Geo. R. Crawford.
Calistoga	Napa	.00	.00	.12	.78	15.67	5.36	9.39	.—	2.23	7.12	1.05	.00	41.72	S. P. R. R., Harry Stone.
Napa	Napa	.00	.00	.05	.61	8.51	4.35	8.09	.00	1.81	4.42	.38	.00	28.22	S. P. R. R., E. Bonsell.
Sonoma †	Sonoma					13.40	4.46	7.84	.28	1.38	7.09	29.00	.00	34.74	Robert Hall.
Petaluma	Sonoma	.00	.00	.04	.86	11.33	3.26	6.09	.18	2.30	4.47	.54	.00	29.07	S. P. R. R., J. Singley.
Ione	Amador	.00	.00	.00	.00	8.45	2.17	5.15	.07	2.40	6.06	.84	.00	25.14	S. P. R. R., W. Moberry.
Jackson	Amador	.00	.00	.23	.00	12.80	2.78	7.97	.75	4.54	8.04				Richard Webb.
Folsom	Sacramento	.02	.—	.21	.—	10.91	4.88	7.60	.90	3.45	6.78	.29	.00	35.04	Signal Service, J. H. Sturges.
Sacramento	Sacramento	.—	.00	.08	.02	11.34	5.76	7.95	.29	2.68	4.08	.07	.00	32.27	Signal Service, J. A. Barwick.
Brighton	Sacramento	.00	.00	.00	.00	7.76	2.34	5.49	.07	3.05	4.16	.10	.00	22.97	S. P. R. R., D. H. Clippenger.
Galt	Sacramento	.00	.00	.00	.00	5.56	2.33	6.04	.00	1.69	3.58	.15	.00	19.35	S. P. R. R., J. A. Sampson.
Batavia	Solano	.00	.00	.00	.31	7.58	4.49	6.31	.00	.84					L. C. Taylor.
Elmira	Solano						4.03	8.01	1.35	1.35	4.22	.14	.00		S. P. R. R., H. T. Shirley.
Vacaville	Solano	.00	.00	.00	.30	15.98	5.68	8.74	.17	1.32	4.84	.05	.00	37.08	A. V. Stevenson.

---

* Began November 1st.

† Season to January 31st.

Seasonal Rainfall—Continued.

Stations.	County.	July	August	September	October	November	December	January	February	March	April	May	June	Total	Names of Observers.
Suisun	Solano	.00	.00	.05	.22	10.38	4.43	8.18	.00	1.87	4.02	.15	.00	29.30	W. H. Wilbur.
Denverton	Solano	.00	.00	.03	.22	7.62	3.22	7.31	.16	1.51	3.45	.24	.00	23.76	Dr. S. K. Nurse.
Rio Vista	Solano	.00	.00	.00	.00	7.96	3.30	7.32	.15	1.67	3.37	.00	.00	23.77	J. C. Stanton.
South Vallejo	Solano	.00	.00	.00	.50	7.87	4.30	6.25	.00	2.20	4.82	.22	.00	26.16	S. P. R. R., J. N. Rhorer.
Bird's Landing	Solano	.00	.00	.00	.10	6.17	2.17	4.92	1.73	3.04	.25	.00	.00	18.38	M. Dinkelspiel.
Benicia	Solano	.00	.00	.02	.30	8.75	5.86	5.98	.07	2.28	4.76	.14	.00	28.16	Dr. C. K. Winne, U. S. A.
Angel Island	Marin	.02	.00	.08	.63	11.57	4.64	7.17	.12	1.75	5.43	.35	.00	31.76	Dr. L. N. Clark, U. S. A.
Saucelito	Marin	.00	.00	.00	.45	12.05	3.97	7.85	.09	2.18	5.21	.53	.00	32.33	G. Tasheira.
Point Reyes	Marin	.00	.00	.00	.13	6.71	1.38	4.05	.13	.60	2.53	.95	.00	16.48	L. H. Dep't, E. G. Chamberlin.
Point Bonita	Marin	.00	.00	.00	.84	9.22	4.56	8.37	.79	1.20	3.98	.59	.00	29.55	Lighth'se Dep't, J. B. Brown.
San Rafael	Marin	.00	.00	.00	.37	10.78	6.88	12.26	.28	3.62	6.53	.73	.00	41.45	U. M. Gordon.
Ross Valley	Marin	.00	.00	.03	.70	15.24	6.69	11.08	.28	3.12	8.30				William McPherson.
Martinez	Contra Costa	.00	.00	.06	.15	8.08	4.11	5.39	.05	1.53	3.44	.25	.00	23.06	S. P. R. R., J. H. Borland.
Antioch	Contra Costa	.—	.00	.—	.00	4.87	2.19	3.60	.00	.56	2.03	.—	.00	13.25	S. P. R. R., S. C. Crilley.
Brentwood	Contra Costa	.—	.00	.00	.00	6.40	2.58	4.16	.03	1.51	2.08	.00	.00	16.76	S. P. R. R., H. A. Graves.
Byron	Contra Costa	.00	.00	.00	.00	6.70	2.04	4.09	.00	1.79	2.23	.00	.00	16.85	S. P. R. R., W. J. Casselman.
East Brother Lighth'se	Contra Costa	.00	.00	.00	.50	5.13	1.71	1.50	.00	.99	1.15	.14	.00	11.12	L. H. Dep't, C. F. Winsor.
Oakland	Alameda	.02	.00	.05	.30	11.11	4.33	8.12	.30	2.57	5.11	.30	.00	32.21	Dr. J. B. Trembly.
Niles	Alameda	.00	.00	.00	.35	8.78	1.92	6.17	.63	1.72	4.18	.18	.00	23.93	S. P. R. R., Wm. Mortimer.
Livermore	Alameda	.00	.00	.05	.00	6.56	1.94	4.20	.24	1.18	2.36	.00	.00	16.53	S. P. R. R., J. S. Mitchell.
Pleasanton	Alameda	.00	.00	.00	.05	7.33	2.17	4.25	.29	1.34	3.08	.39	.00	18.90	S. P. R. R., U. A. Boydston.
Oakland	Alameda	.00	.00	.02	.38	9.73	4.36	6.77	.30	2.00	3.90	.19	.00	26.75	S. P. R. R., T. E. Hunt.
Stockton	San Joaquin	.00	.00	.00	.00	------	.74	4.36	.05	1.60	3.25	.00	.00	.—	S. P. R. R., K. A. White.
Farmington	San Joaquin	.00	.—	.—	.00	6.95	1.37	4.20	.41	1.87	5.01	.19	.00	20.00	S. P. R. R., H. C. Frost.
Lathrop	San Joaquin	.02	.00	.00	.00	6.46	.99	3.51	.01	1.08	2.46	.00	.00	14.53	S. P. R. R., W. C. Budge.
Tracy	San Joaquin	.00	.00	.00	.00	5.60	.85	2.55	.35	1.40	1.55	.—	.00	12.30	S. P. R. R., C. M. Wooster.
LaGrange	Stanislaus	.00	.00	.00	.00	10.60	1.48	3.79	.32	3.24	4.56	.10	.00	24.09	Dr. Joseph Dominici.
Langworth	Stanislaus	.00	.00	.00	.00	8.42	1.90	4.74	.08	2.53	4.78	.10	.00	22.55	A. Gardner.
Modesto	Stanislaus	.00	.00	.00	.00	5.05	.85	2.60	.10	1.46	2.79	.00	.00	12.85	S. P. R. R., J. T. Keating.
Turlock	Stanislaus	.00	.00	.—	.00	6.63	1.10	2.52	.08	1.75	3.01	.00	.00	15.09	S. P. R. R., E. W. Pierce.
Hill's Ferry	Stanislaus	.00	.00	.00	.00	6.90	1.10	3.81	.00	2.06	2.66	.00	.00	16.53	Dr. C. P. Miller.
Alcatraz Island	San Francisco	.02	.00	.12	.50	10.04	3.47	7.00	.15	1.52	4.20	.25	.00	27.27	Dr. Robt. J. Gibson, U. S. A.
Fort Mason	San Francisco	.06	.00	.00	.42	10.70	5.94	4.28	.00	1.74	5.08	.20	.00	28.36	Dr. J. M. Dickson, U. S. A.
Yerba Buena L. H	San Francisco	.00	.00	.00	.84	9.22	4.56	8.37	.79	1.20	3.98	.59	.00	29.55	Lighth'se Dep't, G. B. Koons.
Presidio of S. F.	San Francisco	.00	.00	.08	.46	8.74	4.35	6.77	.10	1.92	4.86	.20	.00	27.48	Dr. H. R. Tilton, U. S. A.
San Francisco	San Francisco	.06	.00	.11	.72	11.78	4.99	7.42	.24	2.07	5.28	.37	.01	33.05	Sig. Serv., Nelson Gorom.
Farrallones L. H.	San Francisco	.00	.00	.04	.81	11.12	3.20	4.34	.41	2.31	3.52	.37	.00	26.15	Lighthouse Dep't, T. Owen.

San Mateo	San Mateo	.00	.00	.02	.13	6.88	2.34	6.20	.35	2.28	4.50	.15	.00	22.85	S. P. R. R., B. A. Peckham.
Menlo Park	San Mateo	.00	.00	.02	.09	6.22	2.17	4.97	.37	1.65	3.34	.08	.00	18.91	S. P. R. R., C. F. Parker.
Woodside	San Mateo	.00	.00	.07	.12	11.46	4.71	9.72	.60	2.60	7.26	.86	.00	37.40	C. H. Halsey.
Point Montara L. H.	San Mateo	.00	.00	.00	.16	10.98	3.17	5.60	.26	3.43	4.42	.39	.00	28.41	Lighthouse Dep't, J. C. Linne.
Pigeon Point L. H.	San Mateo	.07	.00	.15	.02	3.62	1.28	4.59	.62	2.36	5.20	.45	.00	18.36	Lighthouse Dep't, C. B. Grass.
Año Nuevo L. H	San Mateo	.60	.00	.00	.40	7.87	2.45	5.16	.94	1.61	4.15	.18	.00	23.36	Lighth'se Dep't, J. Hodgson.
Santa Cruz	Santa Cruz	.08	.00	.07	.10	10.25	2.90	7.60	.80	3.05	7.60	.30	.00	32.75	S. P. R. R., H. J. Emlay.
Aptos	Santa Cruz	.18	.00	.07	.02	10.65	3.83	7.61	.80	4.09	7.33	.27	.00	34.85	S. P. R. R., Thos. D. Wakelee.
Santa Clara	Santa Clara	.00	.00	.01	.06	7.58									Dr. A. W. Saxe.
Gilroy	Santa Clara	.05	.00	.—	.00	6.77	2.40	6.09	.32	1.17	4.32	.22	.00	21.34	S. P. R. R., C. S. Green.
Los Gatos	Santa Clara	.00	.00	.00	.06	13.31	6.64	11.30	1.34	2.82	7.12	.43	.—	43.02	F. H. McCullogh.
Merced	Merced	.00	.00	.00	.00	5.82	1.08	2.64	.10	1.94	2.85	.00	.00	14.43	S. P. R. R., W. M. Sell.
Los Baños	Merced	.00	.—	.00	.00	6.24	.69	3.32	.05	1.32	1.46	.00	.00	13.08	A. Wideman.
Central Point	Merced	.00	.00	.00	.00	7.04	.85	3.61	.07	1.93	1.91	.06	.00	15.47	H. G. Heydemann.
Borden	Fresno	.00	.00	.00	.00	8.69	.93	3.98	.08	1.66	2.93	.00	.00	18.27	S. P. R. R., B. A. Woodruff.
Fresno	Fresno	.00	.00	.00	.06	7.92	1.90	2.38	.58	1.21	2.57	.00	.00	16.62	S. P. R. R., J. H. Smith.
Firebaugh Ferry	Fresno	.00	.00	.00	.00	9.91	.80	3.52	.22	1.94	2.45	.00	.00	18.84	S. P. R. R., Wm. Sheridan.
Lemoore	Fresno	.00	.00	.00	.03	8.16	1.20	3.16	.20	1.21	3.35	.00	.00	17.31	S. P. R. R., W. J. McFee.
New Idria	Fresno	.00	.00	.00	.00	8.81	9.78	.00	1.28	2.19	5.05	.00	.25	27.36	Thos. N. Williams.
Kingsburgh	Fresno	.00	.00	.00	.10	6.22	2.44	2.04	.24	1.03	2.45	.00	.00	14 52	S. P. R. R., Geo. A. Leon.
Bishop Creek	Inyo	.00	.00	.00	.02		.00	.22	.00	.00	.38	.00	.00		C. & C. R. R., H. A. Man.
Keeler	Inyo	.00	.11	.00	.25	.66	.36	.49	.—	.63	.40	.00	.00	2.90	Sig. Serv., Jno. Grover.
Hollister	San Benito	.27	.00	.00	.00	4.91	1.12	3.93	.65	1.29	2.55	.15	.00	14.87	S. P. R. R., W. C. Johnson.
Salinas	Monterey	.09	.00	.00	.08	6.37	1.17	5.18	1.16	2.16	4.03	.08	.00	20.32	S. P. R. R., J. H. Foster.
Chualar	Monterey	.07	.00	.05	.17	6.90	1.41	2.80	1.10	1.50	2.20	.07	.00	16.27	S. P. R. R., Thos. F. Faw.
Monterey	Monterey	.00	.00	.00	.08	6.65	1.73	3.09	1.26	2.84	3.39	.08	.00	19.12	S. P. R. R., F. D. Howard.
Soledad	Monterey	.00	.00	.00	.20	6.22	1.02	2.44	1.20	1.69	1.93	.00	.00	14.70	S. P. R. R., J. P. Villegas.
Pajaro	Monterey	.13	.00	.05	.00	7.91	4.08	6.15	.47	3.20	5.25	.04	.00	27.18	S. P. R. R., F. Monk.
Gonzales	Monterey	.00	.00	.00	.00	6.34	1.22	3.01	1.38	1.38	1.91	.00	.00	15.24	Wm. Sarles.
Salinas	Monterey	.00	.00	.02	.08	6.60	1.30	5.10	1.47	2.16	3.83	.20	.00	20.76	Dr. E. K. Abbott.
Traver	Tulare						1.77	1.90	.47	1.06	2.01	.00	.00		S. P. R. R., J. W. Raymen.
Goshen	Tulare	.00	.00	.00	.05	4.24	1.43	1.74	.43	1.06	1.67	.00	.00	10.62	S. P. R. R., L. Lawrence.
Visalia	Tulare	.—	.00	.00	.11	4.84	1.63	1.74	.70	1.38	2.70	.00	.00	13.10	Tipton Lindsey.
Hanford	Tulare	.00	.00	.00	.00	8.46	1.27	2.96	.08	1.60	2.38	.00	.00	16.75	S. E. Biddle.
Tulare	Tulare	.05	.00	.00	.06	3.36	1.48	1.41	.15	.80	1.94	.00	.00	9.25	S. P. R. R., H. H. Francisco.
Lewis Creek (Lewis Val.)	Tulare	.00	.00	.00	.04	4.56	1.94	1.82	.51	1.76	2.49	.00	.00	13.12	John Tuohy.
San Luis Obispo	San Luis Obispo	.02	.—	.02	.07	12.90	3.68	5.79	.81	2.42	3.87	.00	.00	29.58	Signal Service, Thos. Gibson.
Delano	Kern	.00	.00	.00	.15	3.40	1.60	.75	.20	.80	1.54	.00	.00	8.44	S. P. R. R., D. L. Cecil.
Sumner	Kern	.05	.00	.00	.03	1.94	1.23	.85	.20	.35	.91	.00	.35	5.94	S. P. R. R. R., B. F. Whitmer.
Caliente	Kern	.05	.00	.00	.05	3.88	1.33	1.59	.66	2.62	2.65	.00	.00	12.83	S. P. R. R., E. B. Love.
Keene	Kern	.06	.—	.00	.28	3.73	.46	2.02	.64	2.28	2.84	.00	.00	12.31	S. P. R. R., A. L. Woolsey.
Tehachapi	Kern	.05	.31	.00	.00	3.70	.52	1.58	.20	4.30	4.57	.00	.00	15.23	S. P. R. R., W. H. Knapp.
Mojave	Kern	.71	.00	.00	.00	1.25	.16	1.49	.00	1.22		.00	.—		S. P. R. R., S. H. Smith.
Colton	San Bernardino	.00	.00	.00	.00	1.92	.52	2.78	.40	3.54	.50	.00	.00	9.66	S. P. R. R., W. S. Hooper.
San Bernardino	San Bernardino	.00	.00	.00	.39	4.36	1.20	6.44	2.52	2.33	3.01	.00	.00	20.25	Sydney P. Waite.

Seasonal Rainfall—Continued.

Stations.	County.	July	August	September	October	November	December	January	February	March	April	May	June	Total	Names of Observers.
San Gorgonio	San Bernardino							2.97	1.73	3.07	1.24	.00	.00		S. P. R. R., Mrs. H. S. Austin.
Riverside	San Bernardino	.00	.00	.00	.02	1.34	.62	2.86	1.38	1.95	1.43	.00	.00	9.60	Albert S. White.
Ravena and Southside	Los Angeles	.00	.00	.00	.17	5.20	.80	5.30	.11	4.51	2.70	.00	.00	18.79	S. P. R. R., J. M. Gough.
Newhall	Los Angeles	.02	.00	.00	.00	9.01	2.25	5.22	.69	3.11	4.27	.00	.—	24.57	S. P. R. R., C. L. Hedemark.
San Fernando	Los Angeles	.00	.00	.00	.00	7.94	1.17	6.70	.00	3.36	3.39	.00	.00	22.56	S. P. R. R., J. J. Sheridan.
Alosta	Los Angeles	.00	.00	.00	.29	6.32	2.50	10.05	2.55	2.74	4.50	.00	.00	28 95	J. J. West.
Los Angeles	Los Angeles	.—	.—	.05	.30	5.55	1.65	7.78	1.41	2.52	3.32	.01	.11	22.70	Signal Service, G. E. Franklin.
Cahuenga Valley	Los Angeles	.00	.—	.00	.06	7.45	1.65	7.65	1.21	2.61	3.00	.00	.00	23.63	Seward Cole.
Anaheim	Los Angeles	.00	.00	.00	.—	2.93	1.16	4.63	.82	2.70	2.51	.00	.00	14.75	S. P. R. R., J. T. Gifford.
Santa Monica	Los Angeles	.00	.00	.00	.25	10.65	2.75	6.60	1.27	1.16	2.00	.00	.00	24.68	H. C. Towner.
Orange	Los Angeles	.00	.07	.00	.02	2.84	1.19	6.83	1.83	2.04	2.17	.08	.00	17.07	John J. Bodkin.
Spadra	Los Angeles	.00	.12	.00	.90	2.72	.90	5.76	.45	2.80	2.85	.00	.00	16.50	S. P. R. R., C. H. Cloutman.
Nordhoff	Ventura	.00	.00	.00	.00	19.16	2.35	6.83	1.17	3.07	6.87	.00	.04	39.49	Captain Richard Robinson.
San Buenaventura	Ventura	.00	.00	.00	.03	8.33	1.03	6.36	1.04	2.27	1.47	.09	.00	21.12	F. E. Brown, C. E.
Guadaloupe	Santa Barbara	.00	.00	.00	.—	8.83	3.59	2.89	.00	2.60	3.65	.00	.00	21.56	Thomas Saulibury, Jr.
Santa Maria	Santa Barbara	.00	.00	.00	.00	8.78	1.63	1.85	.97	2.55	3.37	.00	.00	19.15	L E. Blochman.
Point Conception	Santa Barbara	.00	.00	.00	.00	1.18	1.87	.99	1.22	1.96	.00	.40	.00	7.62	T. L. Perry, Lighthouse Dept.
Santa Barbara	Santa Barbara	.00	.00	.00	.19	9.84	2.47	4.62	1.19	2.03	3.40	.00	.00	23.74	Hugh D. Vail.
Indio	San Diego	.00	.00	.00	.00	.90	.00	.00	.00	.00	.00	.00	.00	.90	S. P. R. R., A. G. Tingman.
Fall Brook	San Diego	.00	.02	.00	.00	5.92	1.13	9.76	1.13	4.70	3.43	.00	.14	26.23	F. E. Fox.
Poway	San Diego	.00	.00	.00	.06	2.71	.90	6.34	.77	3.24	2.78	.00	.00	16.80	Adams Chapin.
Escondido	San Diego	.00	.00	.00	.00	4.68	.75	7.33	.80	4.71	2.60	.—	.00	20.87	Major G. F. Merriam.
San Diego	San Diego	.00	.13	.00	.31	1.56	.71	6.95	1.51	3.73	1.95	.04	.06	16.95	Signal Service, J. C. Sprigg, Jr.
Mammoth Tank	San Diego	.—	.62	.00	.06	1.01	.00	.57	.20	.25	.05	.00	.00	2.70	S. P. R. R., J. F. Ledden.
Laguna Mts. (Ot'y Mesa)	San Diego	.00	1.87	.00	.44	2.71	.60	3.79	1.08	3.32	1.62	.02	.00	15.45	Archibald Campbell.
Oregon.															
Astoria	Clatsop	.01	.02	4.24	3.44	12.45	9.85	13.24	5.69	7.23	4.99	3.65	2.05	66.89	Signal Service, J. N. Griffin.
Portland	Multnomah	.24	.00	2.48	1.68	8.52	7.17	9.33	1.96	5.39	3.16	1.32	.67	41.92	Signal Service, M. L. Hearne.
East Portland	Multnomah	.04	.00	1.13	1.15	4.01	4.13	5.08	2.00	3.04	3.04	1.08	.04	24.74	Dr. Geo. E. Wigg.
Albany	Linn	.00	.00	2.15	1.75	8.40	7.04	9.92	3.34	3.19	2.95	1.79	.36	40.89	John Briggs.
Eola	Polk	.00	.00	2.67	1.42	7.36	8.01	11.56	1.94	3.67	2.74	1.56	.58	38.84	Thos. Pearce.
Roseburg	Douglas	.07	.—	.36	1.66	8.10	6.52	7.59	2.44	3.03	4.98	1.11	.13	35.99	Signal Service, B. S. Pague.
Empire City	Cass	.00	.00	.95	2.43	12.80	8.35	9.05	5.10	4.17	3.08	2.21	.06	48.20	David Morse.
Bandon	Cass	.00	.02	2.32	2.45	18.21	13.27	13.72	5.65	5.81	4.65	1.10	.51	67.61	George Bennett.
Ashland	Jackson	.02	.00	1.18	1.53	8.02	3.32	4.64	1.63	1.43	2.63	1.19	.72	26.31	Signal Service, F. Newman.
Linkville	Klamath	.00	.00	.00	.76	3.76	2.35	5.31	1.21	1.53	1.50	1.37	1.18	18.97	Sig. Service, H. E. Wilkinson

Fort Klamath	Klamath	.00	1.35	.86	.43	7.29	4.09	7.30	1.17	3.69	2.77	1.12	.83	29.55	Signal Service, G. H. Willson.
Lakeview	Lake	.25	.43	.02	.32	6.57	2.15	3.15	1.26	.95	1.32	.97	1.02	18.41	Sig. Service, E. C. Thompson.
Pendleton	Umatilla								.77		.63	1.05			Rev. C. A. Woody.
La Grange	Union												.52		
Mount Angel	Marion												4.36		
Washington Territory.															
Tatoosh Island	Clallam	.22	.12	9.60	7.51	19.25	10.14	16.82	10.29	10.89	7.04	3.44	3.13	98.45	Signal Service, C. E. Butler.
Neah Bay	Clallam	.25	.05	12.15	7.95	19.60	13.00	16.40	14.10	12.90	7.55	4.40	3.70	112.05	Signal Service, Charles Adie.
Port Angeles	Clallam	.03	.00	3.25	2.44	3.90	3.07	5.54	2.98	3.23	2.67	.77	.70	28.58	Signal Service, William Bell.
Pysht	Clallam	.26	.00	9.44	5.85	13.07	7.43	11.44	7.81	7.91	4.49	1.81	2.33	72.34	Signal Service, H. J. Carr.
Port Townsend	Jefferson	.09	.00	2.10	1.00	3.28	1.35	7.72	.37	.54	1.58	.76	.24	19.03	Dr. J. D. Hall, U. S. A.
Blakely (Bainbridge Is.)	Kitsap	.82	.01	4.27	4.40	8.04	6.22	6.90	1.96	2.78	2.37	1.76	.41	39.94	J. M. Hoskinson.
Tacoma	Pierce	.26	.00	2.45	2.47	8.22	6.04	7.71	2.29	3.35	3.67	1.84	1.03	39.33	Captain E. N. Fuller.
Olympia	Thurston	1.10	.00	3.69	2.84	10.18	5.72	9.47	3.39	4.07	4.04	1.90	1.26	47.66	Sig. Service, Edgar McGovern.
Fort Canby	Pacific	.22	.12	3.43	3.48	13.72	10.56	6.33	4.77	8.26	5.44	3.43	2.67	62.43	Signal Service, J. D. Karns.
Kenowick	Yakima				.26	.99	1.03	2.10	.19						Captain A. W. Gray.
Pleasant Grove	Kittitas	01	.—	.39	.06	1.69	1.55	2.84	.30	.24	.98	.20	.07	8.33	George W. Parrish.
Walla Walla	Walla Walla	.00	.02	.60	.70	1.60	1.92	3.45	1.29	1.06	1.66	.67	.73	13.70	Sig. Service, H. S. Blanford.
Spokane Falls	Spokane	.00	.38	1.14	.80	4.25	1.81	3.12	.61	1.07	1.18	.92	.57	15.85	Sig. Service, J. F. Hemenway.
Fort Spokane	Spokane	.00	.38	1.14	.03	2.07	.44	1.86	.41	.79	1.23	1.28	.94	10.57	Signal Service, H. W. Dodge.
Nevada.															
Carson City	Ormsby	.00	.10	.06	.12	4.73	1.75	5.57	.28	1.60	.25	.26	.05	14.77	Charles W. Friend.
Reno	Washoe	.00	.00	.00	.00	1.55	.60	3.00	.20	.70	.00	.10	.00	6.15	S. P. R. R., H. W. Higgins.
Wadsworth	Washoe	.00	.08	.05	.00	1.13	.49	1.62	.30	.85	.—	.—	.—	4.52	S. P. R. R., C. H. Fairchild.
Hot Springs	Churchill	.00	.00	.00	.00	1.54	.22	.95	.52	.30	.35	.—	.16	4.04	S. P. R. R., B. D. Cassidy.
Winnemucca	Humboldt	.00	.04	.08	.07	3.78	1.00	.71	.40	.82	1.37	.14	.76	9.17	Signal Service, Chas. A. Reed.
Brown's	Humboldt	.00	.00	.00	.00	1.39	.55	.40	?	.32	.—	.00	.00	2.66	S. P. R. R., R. Jackman.
Humboldt	Humboldt	.03	.02	.00	.00	.62	.35	.85	.10	.40	.35	.00	.—	2.72	S. P. R. R., H. J. Humphreys.
Golconda	Humboldt	.00	.25	.05	.05	2.97	.30	.65	.02	.50	.80	.00	.52	6.11	S. P. R. R., W. R. Rich.
Battle Mountain	Lander	.00	.33	.00	.00	.72	1.06	1.29	.09	.67	1.72	.24	.21	6.33	S. P. R. R., James Brown.
Beowawe	Eureka	.00	.39	.00	.00	1.18	.87	.78	.08	.35	.41	.22	.00	4.28	S. P. R. R., John Kerns.
Palisade	Eureka	.00	.25	.20	.10	1.88	.60	.30	.54	.75	.28	.00	.10	5.00	S. P. R. R., J. N. Hill.
Carlin	Elko	.00	.25	.60	.17	2.17	.95	2.13	.42	1.31	.32	.28	.24	8.64	S. P. R. R., J. A. McBride.
Halleck	Elko	.00	?	?	.00	1.64	1.07	2.16	.43	1.00	.20	.74	.15	7.39	S. P. R. R., S. C. Pollock.
Elko	Elko	.00	.27	.28	.05	1.80	2.38	2.23	.24	1.39	.53	.24	.46	9.87	S. P. R. R., D. Washeim.
Wells	Elko	.27	.70	.24	.18	1.10	.23	1.07	.20	.39	.47	.30	.20	5.35	S. P. R. R., G. P. Barnette.
Otego*	Elko							2.05	.70	1.45	.48	.15	?	.—	S. P. R. R., P. H. Jeffers.
Toano	Elko	.00	.35	.35	.03	1.45	.67	1.17	.40	1.45	.36	2.28	7.50	16.01	S. P. R. R., C. H. Gordon.
Tecoma	Elko	.00	.20	.20	.00	1.10	.40	1.00	.70	.80	.00	.00	.40	4.80	S. P. R. R., R. R. Powers.

*Recommenced January 1. (.—) Too small to measure.

MONTHLY AVERAGES OF RAINFALL ON THE PACIFIC COAST.

(Compiled by Lieut. W. A. Glassford, Signal Corps, U. S. A., Assistant in charge Pacific Coast Division, Signal Service.)

Table showing Monthly Rainfall Averages on the Pacific Coast, with Averages for Season, with Number of Years for which Averages are Determined, and Total Precipitation for 1885–86.

Stations.	County.	Elevation	Number of Years	July	August	September	October	November	December	January	February	March	April	May	June	Average — Season	Total — 1885–6
California.																	
Crescent City	Del Norte	50	7	.65	.08	3.49	10.22	11.37	18.90	13.09	10.44	6.29	8.58	2.75	2.31	88.77	109.59
Fort Terwah	Del Norte		4	2.72	.71	4.57	4.52	12.71	11.52	9.97	8.78	4.51	6.07	3.63	.18	69.59	
Camp Lincoln	Del Norte		3	.03	.05	.50	1.82	9.48	15.58	16.87	6.68	11.20	7.16	.92	3.12	73.41	
Yreka	Siskiyou	2,635	14	.30	.13	.31	1.28	2.05	2.78	3.21	1.76	1.35	1.04	1.10	.54	15.85	
Fort Jones	Siskiyou	2,570	27	.43	.18	.42	1.21	3.23	4.90	4.84	2.94	2.57	1.84	.98	.46	24.00	30.98
Fort Bidwell	Modoc	4,647	20	.25	.21	.43	1.08	2.29	3.20	3.60	2.31	1.86	1.59	1.25	1.08	19.15	23.78
Orleans	Humboldt		2	.00	.00	.00	.96	9.49	11.16	8.66	3.78	2.15	5.70	1.02	.46	43.38	57.60
Fort Gaston	Humboldt	397	22	.14	.12	.97	2.82	8.15	10.51	10.59	7.91	7.61	5.02	1.64	.72	56.19	72.05
Blue Lake (Christmas Prairie)	Humboldt		3	.12	.—	2.08	1.91	16.68	20.08	12.66	7.34	3.98	8.14	2.08	1.04	76.11	93.43
Hydesville	Humboldt		3	.02	.01	1.16	1.23	6.91	8.82	5.91	3.76	3.47	5.73	.93	.54	38.49	55.70
Cape Mendocino	Humboldt	637	4	.38	.29	1.10	1.58	2.88	2.09	2.68	1.89	1.90	3.15	.74	.82	19.50	27.77
Humboldt	Humboldt	50	7	.03	.04	.88	2.07	4.40	5.58	6.28	4.64	4.46	3.56	1.08	.36	33.38	42.44
Weaverville	Trinity	2,162	12	.13	.05	.54	2.85	5.95	7.74	8.21	5.75	4.77	3.83	1.75	.93	42.50	
Delta	Shasta		5	.06	.00	.28	5.50	9.80	9.34	7.36	1.90	7.95	9.44	5.38	2.18	59.19	75.24
Redding	Shasta	565	12	.06	.08	.42	2.31	4.44	6.38	7.53	4.17	4.53	3.71	1.51	.52	36.66	44.83
Ft. Crook	Shasta	3,390	9	.32	.01	.66	1.07	2.82	4.37	3.16	3.76	3.52	1.60	1.25	.64	23.18	
Red Bluff	Tehama	332	9	.02	.03	.70	1.28	3.85	5.19	5.47	3.63	2.91	2.93	1.08	.37	27.46	35.16
Tehama	Tehama	220	16	.06	.07	.20	1.22	2.38	2.66	2.81	2.14	1.67	1.34	.56	.32	15.39	23.14
Corning	Tehama		9	.00	.00	.29	1.13	1.40	2.06	3.45	2.06	2.24	1.89	.51	.00	15.03	26.92
Mumford Hill	Plumas		6	.14	.32	.69	2.23	4.10	11.12	13.08	12.33	10.71	7.56	2.96	.57	65.81	
Meadow Valley	Plumas		4	2.40	1.13	1.53	2.41	12.10	11.52	7.41	6.05	6.21	3.20	1.99	1.09	57.04	
Chico	Butte	196	16	.03	.03	.32	1.43	2.48	3.78	4.12	3.44	2.50	1.69	.76	.26	20.84	26.99
Oroville	Butte	205	4	.—	.00	.71	.84	3.12	7.54	4.11	1.66	1.32	2.42	.29	.10	22.11	31.21
Cherokee	Butte		13	.11	.06	.51	2.95	5.40	6.59	8.37	7.55	7.95	3.37	1.47	.60	44.93	
Orland	Colusa	254	8	.00	.00	.32	.72	2.42	3.49	2.18	1.84	2.12	1.76	.74	.77	16.36	21.96
Willows	Colusa	132	8	.—	.01	.18	.56	1.70	2.67	2.32	1.02	1.32	1.80	.39	.16	12.03	18.09
Princeton	Colusa	67	13	.09	.09	.23	1.10	1.69	2.68	3.17	1.95	1.72	1.53	.55	.45	15.25	21.59
Colusa	Colusa	45	15	.04	.02	.19	1.04	1.82	3.17	3.67	2.82	1.86	1.54	.45	.37	16.99	21.74
Williams	Colusa	89	10	.—	.01	.19	.46	1.37	2.17	2.77	1.47	1.34	1.52	.42	.37	12.09	18.22

College City	Colusa	--------	3	.00	.—	.37	.80	3.07	3.07	2.30	.91	3.01	1.62	.08	1.12	16.35	------
Laytonville	Mendocino	--------	2	.92	.00	.34	1.06	7.10	10.16	6.73	2.45	3.29	4.98	.21	.34	37.61	------
Westport	Mendocino	--------	2	.00	.00	1.76	1.67	19.75	7.50	4.24	2.87	2.00	4.41	1.32	.31	45.53	31.93
Mendocino	Mendocino	60	16	.05	.03	.60	2.57	7.28	8.26	9.92	8.90	7.36	4.50	1.36	.40	51.24	69.00
Ukiah	Mendocino	--------	10	.00	.01	.48	1.43	3.94	6.21	6.88	4.78	4.57	3.52	.98	.12	32.92	45.69
Camp Wright	Mendocino	--------	10	.01	.02	.44	1.23	6.50	11.41	8.82	7.04	5.57	2.09	.60	.24	43.97	------
Point Arena	Mendocino	56	8	.02	.00	.30	1.37	3.81	6.12	4.29	3.24	3.94	4.06	.76	.20	28.11	50.87
Marysville	Yuba	69	16	.01	.01	.22	1.10	1.85	3.43	3.31	2.23	1.89	1.64	.60	.31	16.60	22.33
Smartsville	Yuba	800	10	.05	.00	.11	1.50	3.74	5.01	7.11	5.70	4.48	3.16	.88	.44	32.18	------
Nevada City	Nevada	2,500	23	.04	.03	.54	1.82	6.77	12.09	10.93	7.68	8.57	5.14	2.06	.60	56.27	65.78
Truckee	Nevada	5,819	14	.16	.03	.05	1.43	2.12	4.01	6.43	6.14	4.81	2.85	1.08	.41	29.52	------
Bowman's Dam	Nevada	5,400	15	.20	.02	.71	3.65	7.94	14.00	14.00	11.07	10.77	7.78	2.59	.83	73.56	79.37
Boca	Nevada	5,531	13	.20	.—	.02	.58	.94	2.47	4.38	3.23	3.28	1.66	.46	.13	17.35	------
Grass Valley	Nevada	--------	15	.00	.01	.69	2.81	6.06	8.77	10.03	7.10	7.57	5.61	1.90	.62	51.27	59.41
North Bloomfield	Nevada	3,160	16	.12	.02	.60	2.90	5.84	9.83	9.37	7.81	7.58	5.75	2.04	.67	52.53	61.62
West Butte	Sutter	90	7	.00	.00	.32	.73	1.83	2.67	2.50	1.13	2.18	2.57	.85	.32	15.10	22.73
Kono Tayee	Lake	1,350	13	.00	.01	.19	1.02	4.21	2.53	4.86	3.34	3.68	1.16	.52	.29	21.81	29.99
Middletown	Lake	--------	7	.00	.00	.49	1.43	4.94	10.41	7.78	3.44	4.79	6.97	1.23	.37	41.85	52.04
Emigrant Gap	Placer	5,230	17	.02	.00	.33	2.51	3.71	7.49	11.12	8.75	9.25	5.54	2.53	.72	51.41	68.42
Cisco	Placer	5,939	14	.13	.00	.32	2.52	4.21	8.66	11.66	10.56	9.98	5.78	2.74	.89	57.55	------
Summit	Placer	7,017	13	.09	.01	.23	2.56	3.12	7.81	8.71	9.36	7.74	5.89	1.83	.60	47.95	------
Colfax	Placer	2,421	16	.00	.—	.32	1.83	5.54	7.76	8.65	6.40	7.04	5.37	1.69	.56	45.16	51.01
Auburn	Placer	1,363	16	.03	.01	.32	1.57	4.02	6.00	6.39	4.78	4.67	3.73	1.32	.31	33.15	42.31
Alta	Placer	3,612	14	.—	.00	.36	2.25	4.81	5.98	9.08	7.76	7.74	3.77	1.48	.47	43.76	------
Rocklin	Placer	249	16	.04	.01	.12	.88	2.18	3.68	4.25	2.74	2.61	2.01	.70	.23	19.45	27.81
Georgetown	El Dorado	2,500	14	.06	.—	.49	3.47	6.50	10.39	11.53	8.00	9.23	7.25	2.30	.82	60.04	73.08
Placerville	El Dorado	1,857	11	.04	.01	.57	2.90	5.94	7.26	9.10	4.38	6.34	6.18	1.77	.75	45.24	54.63
Shingle Springs	El Dorado	1,530	20	.21	.00	.24	.74	4.46	7.52	7.72	3.71	5.14	3.19	1.13	.19	34.25	42.08
Dunnigan	Yolo	65	10	.00	.00	.20	.81	1.99	2.89	3.78	1.65	2.12	2.04	.70	.30	16.48	29.50
Woodland	Yolo	45	15	.01	.00	.10	.89	1.86	3.10	3.55	2.24	2.17	1.86	.58	.23	16.59	22.84
Knight's Landing	Yolo	35	9	.00	.01	.20	.66	2.00	3.06	3.04	2.07	2.18	2.60	.61	.34	16.77	24.08
Davisville	Yolo	51	15	.01	.—	.12	.77	1.69	3.80	3.37	2.01	1.89	1.72	.42	.15	15.95	24.50
Calistoga	Napa	--------	14	.00	.00	.25	1.95	3.95	5.34	7.10	4.41	4.48	3.17	.85	.33	31.83	41.72
Napa	Napa	20	10	.01	.00	.53	.77	2.32	3.72	5.70	3.12	3.10	2.97	.82	.30	23.36	28.22
Petaluma	Sonoma	10	15	.—	.—	.09	1.03	2.68	4.50	4.99	3.38	2.62	2.15	.57	.31	22.32	29.07
Ione	Amador	287	9	.00	.00	.15	.98	1.93	2.99	3.11	2.84	3.23	3.61	.89	.33	20.06	25.14
Jackson	Amador	--------	9	.00	.00	.42	1.66	3.04	4.86	5.18	4.69	4.88	5.17	1.39	.32	31.61	37.11
Folsom	Sacramento	197	15	.02	.—	.26	1.09	2.63	4.57	4.48	3.28	3.06	2.58	.86	.26	23.09	35.04
Sacramento	Sacramento	35	37	.04	.—	.12	.70	2.16	4.66	3.84	2.81	2.91	1.93	1.03	.12	20.32	32.27
Brighton	Sacramento	53	9	.00	.00	.15	.67	1.71	2.16	3.03	2.52	2.66	2.69	.62	.23	16.41	22.97
Galt	Sacramento	49	9	.00	.00	.11	.78	1.41	2.51	2.96	2.12	2.50	2.28	.83	.20	15.70	19.35
Vacaville	Solano	--------	7	.00	.00	.30	1.43	3.71	.85	5.85	2.86	3.91	5.35	1.13	.00	33.39	37.08
Fairfield and Suisun	Solano	11	15	.06	.—	.18	.91	2.14	4.87	4.43	2.53	2.42	1.74	.56	.26	20.10	29.30
Denverton	Solano	10	13	.01	.—	.15	.96	2.59	2.58	4.33	2.29	2.53	1.87	.56	.29	18.16	23.76
Rio Vista	Solano	--------	7	.00	.01	.20	.80	2.07	3.16	3.08	1.54	2.78	2.34	.75	.21	16.94	23.77

Table Showing Monthly Rainfall Averages—Continued.

Stations.	County.	Elevation	Number of Years	July	August	September	October	November	December	January	February	March	April	May	June	Average — Season	Total — 1885-6
South Vallejo	Solano	23	14	.00	.00	.08	.72	1.63	2.76	2.65	1.84	2.04	1.89	.51	.20	14.32	26.16
Bird's Landing	Solano	--------	3	.00	.01	.05	.84	3.72	1.36	2.68	1.78	3.19	1.21	.00	.00	14.84	18.38
Benicia	Solano	64	30	.01	.01	.06	.54	1.87	3.34	3.23	2.11	2.44	1.68	.51	.17	15.97	28.16
Angel Island	Marin	50	18	.01	.—	.15	1.07	2.73	4.32	4.70	2.98	2.81	2.36	.49	.24	21.85	31.76
Saucelito	Marin	--------	5	.00	.00	.26	1.65	4.21	5.13	3.91	2.18	3.50	3.71	1.06	.60	26.21	32.33
Point Reyes	Marin	296	11	.00	.00	.08	.54	2.35	2.77	3.27	2.75	2.28	2.05	.62	.22	16.93	16.48
Point Bonita	Marin	124	11	.03	.00	.25	1.70	3.15	3.73	5.04	3.83	3.89	2.94	.97	.39	25.93	29.55
San Rafael	Marin	25	11	.00	.00	.34	2.30	4.68	7.03	8.69	4.96	5.45	3.94	1.19	.40	38.98	41.45
Martinez	Contra Costa	9	9	.00	.00	.11	.60	1.87	3.15	2.88	2.27	2.92	2.49	.56	.25	17.10	23.03
Antioch	Contra Costa	25	8	.—	.—	.04	.53	1.33	2.26	2.20	1.23	1.84	1.52	.47	.18	11.70	13.25
Brentwood	Contra Costa	80	9	.—	.00	.01	.39	1.50	2.11	2.17	1.05	1.76	1.69	.31	.27	11.26	16.76
Byron	Contra Costa	33	7	.00	.00	.—	.51	1.63	2.43	2.32	1.19	2.07	2.10	.37	.22	12.84	16.85
East Brother Lighthouse	Contra Costa	63	11	.00	.00	.04	.30	1.45	1.01	1.71	.99	.86	.74	.26	.11	7.47	11.12
Oakland (R. R.)	Alameda	25	9	.01	.03	.25	.98	2.33	2.93	4.19	3.20	3.19	2.73	.81	.33	20.96	26.75
Oakland (Dr. Trembly)	Alameda	25	13	.02	.02	.24	1.43	3.18	4.13	5.10	3.09	3.62	2.48	.74	.49	24.54	32.21
Niles	Alameda	87	16	.00	.00	.11	.83	2.27	3.36	3.20	2.62	2.25	1.70	.55	.25	17.14	23.93
Livermore	Alameda	485	16	.00	.01	.08	.55	1.57	2.78	2.68	2.21	2.00	1.43	.38	.18	13.87	16.53
Pleasanton	Alameda	360	9	.—	.01	.06	.77	1.59	2.85	3.31	2.70	3.24	2.50	.64	.25	17.92	18.90
Calaveras Valley	Alameda	626	4	.00	.00	.26	1.42	1.68	2.35	3.79	4.28	5.47	5.33	1.85	.40	26.83	------
Stockton	San Joaquin	20	16	.01	.00	.06	.58	1.28	2.94	2.54	2.00	1.94	1.44	.64	.11	13.54	------
Farmington	San Joaquin	111	10	.00	.—	.15	.77	1.43	2.42	2.74	2.32	2.40	2.50	.63	.21	15.57	20.00
Lathrop	San Joaquin	25	9	.—	.00	.10	.44	1.32	1.79	2.18	1.77	1.70	1.89	.63	.16	11.98	14.53
Tracy (Ellis)	San Joaquin	76	16	.—	.01	.01	.32	1.14	1.99	1.74	1.34	1.29	.84	.26	.16	9.10	12.30
La Grange	Stanislaus	250	19	.00	.00	.16	.85	2.05	2.80	2.86	2.83	2.40	1.87	.65	.07	16.54	24.09
Langworth	Stanislaus	153	4	.00	.00	.16	.78	2.30	2.55	2.38	1.16	2.98	2.84	.16	.23	15.54	22.55
Modesto	Stanislaus	90	16	.01	.—	.11	.53	1.46	1.67	1.76	1.15	1.24	1.13	.35	.11	9.52	12.85
Grayson	Stanislaus	55	14	.00	.00	.01	.47	1.22	2.70	2.21	1.77	1.65	1.22	.44	.17	11.84	------
Turlock	Stanislaus	106	8	.00	.00	.04	.57	1.73	1.37	1.35	1.25	1.35	1.85	.46	.26	10.26	15.09
Hill's Ferry	Stanislaus	72	6	.00	.00	.13	.35	1.78	1.89	1.70	1.41	2.03	1.55	.70	.27	11.81	16.53
Alcatraz Island	San Francisco	50	21	.—	.01	.08	.61	1.96	3.74	4.01	2.86	2.00	1.42	.40	.18	17.27	27.27
Fort Mason (Black Point)	San Francisco	80	13	.00	.00	.17	1.06	2.74	2.50	3.28	1.90	2.01	2.02	.66	.08	16.42	28.36
Yerba Buena	San Francisco	97	8	.00	.00	.27	.92	2.12	3.49	2.71	1.91	2.62	2.58	.55	.34	17.51	20.12
Presidio of San Francisco	San Francisco	58	32	.12	.00	.09	.71	2.22	4.33	3.96	3.11	2.63	1.85	.51	.30	19.73	27.48
Fort Point	San Francisco	27	15	.01	.00	.05	.56	1.67	4.37	4.07	2.95	1.90	1.20	.56	.02	17.36	------
San Francisco	San Francisco	60	37	.01	.02	.17	.88	3.04	5.34	5.18	3.61	3.18	2.04	.63	.15	24.25	33.05
Farallons	San Francisco	331	6	.00	.00	.18	1.05	2.52	3.54	2.97	2.10	2.35	2.23	.74	.50	18.18	26.15
San Mateo	San Mateo	30	13	.00	.00	.11	1.01	2.24	3.11	4.24	2.47	2.80	2.23	.50	.32	19.03	22.85

Menlo Park	San Mateo	72	9	.00	.01	.03	.66	1.48	2.99	2.74	1.54	2.41	2.35	.51	.38	15.10	18.91
Woodside	San Mateo		3	.00	.02	.16	1.27	5.90	9.47	5.71	2.74	4.78	4.55	.41	1.12	36.13	37.40
Point Montara	San Mateo		8	.00	.00	.29	1.10	3.29	4.79	3.87	2.41	3.80	3.37	1.02	.45	24.39	28.41
Pigeon Point	San Mateo	150	8	.01	.00	.18	.80	1.79	3.17	2.39	1.93	2.12	3.31	1.01	.26	16.97	18.36
Crystal Springs	San Mateo	220	9	.03	.00	.23	1.95	3.19	5.29	7.77	6.54	7.14	4.07	1.36	.51	38.04	
Año Nuevo	San Mateo		8	.09	.00	.25	1.06	2.32	5.19	3.05	2.40	3.13	3.41	.94	.40	22.24	23.36
Santa Cruz	Santa Cruz	25	9	.01	.01	.41	1.35	2.40	4.59	5.09	3.75	3.56	3.64	.67	.40	25.88	32.75
Aptos	Santa Cruz		2	.06	.00	.07	.78	5.32	7.58	5.24	.50	2.26	4.56	.20	.00	26.60	34.85
Watsonville	Santa Cruz	45	4	.00	.00	.10	1.17	1.75	7.43	4.85	4.74	2.14	1.76	.59	.00	24.53	
Santa Clara	Santa Clara	80	7	.00	.01	.03	.59	1.62	2.55	2.05	1.70	2.97	1.50	.52	.39	13.93	
San José	Santa Clara	94	13	.00	.00	.05	.68	1.41	1.87	2.63	1.85	2.23	1.65	.37	.21	12.95	20.63
Mt. Hamilton	Santa Clara	4,250	4	.00	.04	.25	3.03	1.87	4.57	3.68	6.06	4.54	2.34	1.31	.00	33.74	
Tennant	Santa Clara	335	7	.00	.00	.08	.55	.83	3.36	3.23	4.02	4.36	3.07	.93	.23	20.66	
Gilroy	Santa Clara	261	13	—	.01	.20	1.02	2.28	3.16	4.62	3.02	2.91	2.05	.43	.16	19.86	21.34
Merced	Merced	171	14	.01	.00	.09	.45	1.31	1.73	2.36	1.31	1.54	1.52	.46	.21	11.09	11.43
Los Baños	Merced		11	.02	—	.04	.43	1.46	.74	1.61	1.08	1.20	.77	.28	.13	7.54	13.08
Central Point	Merced	117	7	—	.00	.08	.32	1.35	1.61	1.52	1.05	1.85	1.29	.48	.20	9.75	15.47
Borden	Fresno	274	12	.02	.00	—	.34	1.26	1.31	1.57	1.48	1.42	1.33	.37	.17	9.27	18.27
Fresno	Fresno	295	9	.00	.00	.09	.40	1.26	1.38	1.41	1.14	1.33	1.53	.89	.14	9.57	16.22
Firebaugh Ferry	Fresno	150	14	.00	.00	.07	.31	1.51	1.28	1.78	1.14	1.12	.94	.16	.17	8.48	18.84
Lemoore	Fresno	227	8	—	.00	.03	.33	1.45	2.11	1.87	1.05	1.20	1.42	.16	.20	9.82	17.31
New Idria	Fresno		4	.01	.00	.08	.55	2.09	3.21	2.18	2.43	5.56	3.54	.76	.85	21.26	27.36
Kingsburgh	Fresno	301	8	.00	.00	.04	.36	1.13	1.97	1.21	1.21	1.34	1.59	.39	.12	9.36	14.52
Fort Miller	Fresno	402	8	.00	.00	.03	.28	2.63	5.40	1.65	1.76	4.29	1.91	1.05	.00	19.00	
Bishop Creek	Inyo		3	.00	.00	.00	.01	.00	.46	.11	.00	.54	.19	.00	.00	1.31	.62
Keeler	Inyo	3,622	3	.00	.16	.00	.12	.33	.53	.24	.42	.51	.47	.53	.27	3.58	2.90
Independence	Inyo	3,957	13	.10	.18	.07	.32	.21	2.27	1.22	.56	.52	.21	.27	.04	5.97	
Hollister	San Benito	292	13	.02	—	.08	.66	1.56	1.70	2.58	1.72	1.84	1.24	.34	.20	11.94	14.87
Salinas	Monterey	75	12	.01	.01	.08	.75	1.33	1.82	3.18	2.17	2.19	1.55	.41	.25	13.75	20.32
Chualar	Monterey	111	9	.01	.00	.04	.94	1.64	1.82	2.78	2.41	2.47	1.48	.40	.20	14.19	16.27
Monterey	Monterey	42	12	.04	.01	.05	.62	1.52	2.71	2.10	1.88	3.31	2.04	.45	.23	14.96	19.12
Soledad	Monterey	188	13	.00	.01	.01	.30	1.08	1.13	2.16	1.45	1.67	.78	.26	.13	8.94	14.70
Pajaro	Monterey	31	13	.01	.01	.12	1.16	2.13	3.08	4.33	2.68	2.82	1.84	.50	.21	18.89	27.18
Gonzales	Monterey		10	.00	.00	.03	.47	1.04	1.66	1.73	1.78	1 70	1.16	.30	.16	10.03	15.24
Goshen	Tulare	286	9	.00	.00	.07	.32	.89	1.53	1.07	1.25	1.16	1.23	.15	.09	7.76	10.62
Visalia	Tulare	335	8	—	.00	.04	.50	1.02	1.86	1.34	1.45	1.23	1.64	.30	.01	9.39	13.10
Hanford	Tulare		7	.00	.01	.04	1.45	.59	3.38	1.30	1.62	1.91	1.62	.27	.24	12.23	
Tulare	Tulare	289	13	.01	.00	.02	.21	.56	1.09	1.41	1.17	1.00	1.08	.24	.10	6.89	9.25
San Luis Obispo	San Luis Obispo	270	17	—	—	.03	.72	1.95	4.53	4.68	3.75	2.81	2.05	.35	.14	21.31	
Delano	Kern	319	11	.00	—	.01	.18	.78	.83	.78	1.09	.93	1.14	.58	.02	6.34	8.44
Sumner	Kern	422	12	—	.00	.00	.10	.56	.82	.94	.67	.66	.86	.30	.11	5.02	5.94
Caliente	Kern	1,290	11	—	.00	.02	.49	.82	1.67	1.36	1.91	1.77	1.98	.84	.12	10.98	12.83
Keene	Kern	2,705	10	.01	—	.06	.68	.85	2.09	1.72	2.87	2.03	2.20	.55	.22	13.28	12.31
Tehachapi	Kern	3,964	10	.01	.11	.04	.37	.66	1.67	1.47	2.57	1.82	1.79	.40	.14	11.04	15.23
Mojave	Kern	2,751	8	.07	.01	.03	.03	.40	1.29	.80	1.32	.56	.40	.02	—	4.94	4.83

TABLE SHOWING MONTHLY RAINFALL AVERAGES—Continued.

STATIONS.	County.	Elevation	Number of Years	July	August	September	October	November	December	January	February	March	April	May	June	Average — Season	Total— 1885-6
Fort Tejon	Kern	3,246	10	.02	.16	2.02	1.00	1.49	4.32	1.62	3.19	2.49	3.19	1.17	.21	20.88	------
Colton	San Bernardino	965	10	.05	.03	.00	.24	.47	1.54	1.46	2.23	1.57	1.52	.63	.09	9.84	9.66
San Bernardino	San Bernardino	-------	16	.02	.08	.05	.43	1.58	3.10	3.66	3.03	1.97	1.75	.44	.06	16.17	20.25
Riverside	San Bernardino	1,030	5	.00	.60	.02	.27	.37	1.38	1.12	1.97	1.93	1.16	.43	.12	9.37	9.60
Camp Cady	San Bernardino	3,000	3	.35	.63	.00	.30	.27	.16	.18	.50	.37	.28	.08	.00	3.09	------
Ravenna	Los Angeles	2,358	7	.00	.08	.05	.33	1.19	2.16	1.93	2.01	2.41	1.20	.09	.27	11.72	18.79
Newhall	Los Angeles	1,268	10	—	.00	.00	.28	1.51	2.89	2.30	2.67	2.49	1.80	.52	.17	14.63	24.57
San Fernando	Los Angeles	1,066	9	.00	.00	.00	.32	1.48	2.64	2.54	2.84	2.61	1.94	.43	.22	15.02	22.56
Alosta	Los Angeles	600	6	.00	.00	.00	1.01	1.75	2.97	4.06	6.19	5.17	3.10	.78	.42	25.45	28.95
Cahuenga Valley	Los Angeles	300	4	.00	—	.03	.58	2.91	2.51	3.30	3.92	3.60	2.18	.97	.20	20.20	23.63
Los Angeles (Signal Service)	Los Angeles	371	9	—	—	.01	.56	1.47	3.67	2.70	3.50	2.95	2.15	.45	.18	17.64	22.70
Anaheim	Los Angeles	250	9	.00	—	.00	.36	.86	2.02	1.73	2.39	1.92	1.12	.47	.14	11.01	14.75
Santa Monica	Los Angeles	50	3	.00	.00	.00	.12	8.92	1.52	4.22	.64	.50	1.37	.07	.01	16.13	24.68
Spadra	Los Angeles	705	12	—	.01	.01	.42	1.20	1.78	3.15	2.20	1.92	1.32	.32	.06	12.39	16.50
South Side (Ravenna)	Los Angeles	2,358	7	.00	.08	.05	.33	1.19	2.16	1.93	2.01	2.41	1.20	.09	.27	11.72	18.79
Drum Barracks	Los Angeles	32	5	.06	.20	.00	.03	.32	2.48	2.22	1.17	1.92	.34	.00	.00	8.74	------
Nordhoff	Ventura	1,200	5	.00	.00	.00	.36	4.67	2.54	4.99	4.32	5.32	3.80	1.24	.48	27.72	39.49
San Buenaventura	Ventura	50	11	.00	.00	.01	.44	1.96	2.53	3.86	3.57	2.37	1.48	.38	.27	16.87	21.12
Santa Maria	Santa Barbara	-------	2	.00	.00	.00	.00	8.78	3.10	1.21	.97	1.34	2.26	.00	.00	17.66	19.15
Point Conception	Santa Barbara	258	8	.00	—	—	.37	.44	1.87	1.24	3.81	2.73	1.48	.11	.16	12.21	7.62
Santa Barbara	Santa Barbara	30	19	.01	.00	.01	.47	1.57	3.88	3.92	3.79	1.99	1.73	.33	.13	17.83	23.74
Guadaloupe	Santa Barbara	33	1	.00	.00	.00	—	8.83	3.59	2.89	.00	2.60	3.65	.00	.00	21.56	21.56
Indio	San Diego	12	9	.00	.00	.00	.01	.26	.58	.33	.51	.14	.06	.05	.00	2.32	.90
Fall Brook	San Diego	700	11	.02	.05	.05	.70	1.36	2.65	3.51	3.56	2.97	2.24	.53	.11	17.75	26.23
Poway	San Diego	-------	8	.01	.03	.01	.63	.87	2.51	2.65	2.38	2.27	2.18	.56	.10	14.15	16.80
Escondido	San Diego	-------	11	.00	.02	.25	.48	1.39	1.92	3.27	3.23	2.54	1.84	.53	.22	15.69	20.87
San Diego	San Diego	40	15	.02	.20	.05	.47	.67	2.28	2.05	2.36	1.50	.94	.40	.07	11.01	16.95
Julian	San Diego	-------	5	.00	.00	.00	.55	2.28	5.28	4.81	8.25	9.85	5.99	.73	.00	37.74	------
Mammoth Tank	San Diego	265	9	.10	.30	—	.17	.18	.52	.39	.32	.10	.11	.02	.00	2.21	2.70
Fort Yuma	San Diego	200	17	.42	.88	.83	.13	.40	.29	.21	.43	.21	.06	.00	.00	3.86	------
Oregon.																	
Astoria	Clatsop	52	23	1.20	1.48	3.59	5.27	10.18	12.44	12.21	9.18	9.68	4.90	3.48	2.87	76.48	66.89
Fort Stevens	Clatsop	-------	6	2.03	2.02	2.39	4.68	11.14	12.67	11.48	10.66	9.32	5.41	2.94	3.83	78.57	------
Portland	Multnomah	88	15	.82	.72	1.87	4.65	7.15	8.17	7.02	7.37	6.23	3.32	2.44	1.71	51.47	41.92
Fort Yamhill	Yamhill	-------	9	.36	.42	2.69	2.96	7.55	10.08	9.51	7.31	7.66	3.03	2.41	1.61	55.59	------
Oregon City	Clackamas	200	3	.15	.94	2.24	3.46	5.12	8.75	7.93	5.17	7.15	1.92	3.37	1.41	47.61	------

Albany	Linn	600	7	.70	.46	2.59	3.98	4.28	8.92	7.76	7.36	3.59	3.61	2.12	1.43	46.80	40.89
Eola	Polk	500	5	.33	.07	1.02	1.17	4.80	5.37	6.26	6.78	5.59	3.08	2.11	1.14	37.72	38.84
Fort Hoskins	Polk	--------	7	.37	.36	3.18	3.36	8.34	11.73	12.73	10.02	9.07	2.86	2.76	1.92	66.70	------
Roseburg	Douglas	523	9	.35	.35	.89	2.77	3.92	6.33	6.20	4.56	3.44	3.02	1.82	.97	34.62	35.99
Umpqua	Douglas	8	6	.30	.38	2.27	3.66	9.71	11.89	10.28	9.91	9.73	4.01	3.09	2.18	67.41	------
Dalles	Wasco	350	13	.36	.27	1.46	.97	3.35	3.46	4.36	2.39	2.23	.74	.94	.53	21.96	------
Empire City	Coos	10	6	.42	.24	1.24	3.00	4.02	7.25	6.31	7.41	3.11	2.91	1.60	1.28	38.82	48.20
Bandon	Coos	43	9	.69	.59	2.43	4.65	6.26	11.40	11.12	10.03	6.44	4.72	2.98	1.48	62.79	67.61
Port Oxford	Curry	50	3	.56	1.22	2.34	7.31	10.27	14.43	9.08	5.79	6.17	7.53	4.56	1.33	70.59	------
Ashland	Jackson	1,940	3	.14	.00	1.73	1.58	4.04	4.48	4.22	2.31	.92	1.80	1.83	1.12	24.17	26.31
Linkville	Klamath	4,250	3	.14	.00	.28	1.26	1.96	3.16	4.02	1.90	1.76	2.26	1.58	1.15	19.47	18.97
Fort Klamath	Klamath	4,200	3	.30	.67	1.17	.87	4.66	3.03	3.95	2.94	4.04	.59	1.01	.33	23.56	29.55
Lakeview	Lake	5,060	3	.42	.81	.97	.97	3.30	3.06	2.74	1.69	1.76	1.53	1.16	2.52	20.93	18.41
Camp Warner	Lake	--------	5	.28	.19	.60	.23	1.70	2.89	1.61	1.97	1.21	1.21	1.89	.63	14.41	------
Umatilla	Umatilla	350	5	.32	.34	.78	.88	.93	1.31	1.40	1.14	.89	.82	.64	.36	9.81	------
Camp Watson	Grant	--------	1	.11	.00	.62	.28	.78	3.11	1.72	.86	1.78	1.39	1.21	1.95	13.81	------
Camp Harney	Grant	--------	6	.36	.09	.26	.18	1.15	1.15	1.76	.88	.91	.59	.79	.64	8.76	------
Washington Territory.																	
Tatoosh Island	Clallam	90	3	.98	2.80	7.88	6.95	13.96	11.02	14.87	9.87	5.21	3.57	4.45	2.96	84.52	98.45
Neah Bay	Clallam	40	9	2.39	2.08	8.09	9.33	15.05	15.38	16.49	14.50	12.15	5.05	5.18	4.26	110.05	112.05
Port Angeles	Clallam	14	3	.27	.97	2.72	3.34	2.99	3.65	5.91	3.75	1.44	1.69	.96	1.04	29.73	28.58
Port Townsend	Jefferson	16	14	.64	.70	.95	1.45	2.29	2.39	3.09	1.82	1.76	1.29	1.52	1.42	19.23	19.03
San Juan Island	San Juan	150	9	.47	.55	1.68	2.23	3.98	4.73	3.31	2.80	2.18	1.74	1.09	3.58	28.34	------
Semiahmoo	Whatcom	11	1	.68	.80	3.91	7.88	2.57	.00	5.61	2.68	4.10	2.13	1.84	1.42	33.62	------
Fort Bellingham	Whatcom	88	2	.43	1.20	2.23	3.36	6.21	3.04	2.59	3.52	2.10	1.58	1.19	2.10	29.66	------
Blakely	Kitsap	--------	9	.99	1.15	2.87	4.07	5.53	7.06	6.73	6.02	4.64	3.02	2.59	1.72	46.39	------
Fort Colville	Stevens	1,963	11	1.07	.65	.35	.51	.70	1.67	.71	1.45	1.03	1.00	1.60	1.32	14.06	------
Tacoma	Pierce	297	1	.00	.00	2.45	2.47	8.22	6.04	7.71	2.29	3.35	3.67	1.84	1.03	39.07	39.07
Fort Steilacoom	Pierce	300	12	.49	.90	2.18	2.85	5.09	6.51	6.09	4.41	4.93	2.46	1.59	1.42	38.92	------
Olympia	Thurston	36	9	.86	.75	3.07	5.15	9.19	9.90	8.59	8.92	4.81	3.79	2.53	1.17	58.02	47.66
Cape Disappointment	Pacific	30	6	2.64	.28	2.56	5.92	11.98	11.79	10.02	8.03	8.11	4.95	1.91	3.05	71.24	------
Fort Canby	Pacific	179	3	.98	.68	4.29	5.12	8.70	7.45	6.49	7.06	3.86	3.18	2.73	2.72	53.26	62.43
Cathlamet	Wahkiakum	40	2	.60	1.60	1.43	2.85	9.75	8.97	15.05	6.75	12.10	3.80	2.60	2.73	68.23	------
Fort Vancouver	Clarke	50	17	1.32	.52	1.65	2.38	5.14	7.18	5.96	3.58	3.87	2.47	2.36	1.94	38.37	------
Fort Simcoe	Yakima	--------	2	.07	.52	.44	.57	.79	.95	2.30	2.87	1.22	.33	.29	.26	10.61	------
Pleasant Grove	Kittitass	1,500	4	.47	.—	.25	.47	1.06	2.36	1.73	.94	.56	.92	1.10	.32	10.18	8.33
Cascades	Skamania	50	3	.47	.94	5.65	5.15	9.48	6.05	8.56	8.74	7.47	5.83	4.51	1.79	64.64	------
Walla Walla	Walla Walla	1,018	14	.47	.43	.68	1.19	1.86	2.08	1.88	1.81	1.44	1.61	2.06	1.26	16.77	13.70
Spokane Falls	Spokane	1,909	6	1.30	.32	1.46	2.56	2.30	2.26	2.82	2.49	1.03	1.46	1.19	1.59	20.78	------
Nevada.																	
Carson City	Ormsby	4,630	7	.10	.14	.17	.53	1.24	2.24	2.16	1.20	1.83	1.53	.29	.48	11.91	14.77
Winnemucca	Humboldt	4,358	8	.11	.10	.35	.55	.95	1.23	1.07	.94	.80	1.07	.83	.85	8.85	9.17

METEOROLOGICAL DATA.

A Brief Review on the Meteorological Condition of Sacramento, California, for Each Month, from January, 1885, to August, 1886, Inclusive.

The following meteorological data was compiled by Sergeant James A. Barwick, Observer Signal Corps, U. S. Army, in charge of the United States Signal Office in this city, for the biennial report of the State Board of Health of California:

January, 1885—Mean temperature, normal; rainfall, 2.16 inches, which is 1.61 inches less than the average precipitation for 35 years; frost was deposited on six days; highest water in the river, 23.5 feet; lowest, 17 feet; earthquake shock on the thirtieth. Highest temperature, 62°; lowest, 34°.

February—Mean temperature, 4° higher than the average for 33 years; rainfall, .49 of an inch, being 2.44 inches below the average for many years; killing frost twice, and light frost four times; highest river, 18 feet; lowest, 16.1 feet. Highest temperature, 70°; lowest, 40°.

March—The mean temperature was about 4° warmer than the average for 33 years. This was the driest month of March known here since 1849. The rainfall was but .08 of an inch, while the average of many years was 3 inches; highest river, 16 feet; lowest, 13.9 feet; partial eclipse of the sun on the sixteenth. Highest temperature, 77°; lowest, 46°.

April—The mean temperature was 1.4° above the average for many years; rainfall, .68 of an inch, which was 1.23 inches less than the average for 35 years; two earthquake shocks—one on the third and one on the eleventh; frost on four occasions; highest river, 15.2 feet; lowest, 13.5 feet; last frost of Spring, April twentieth. Highest temperature, 83°; lowest, 39°.

May—The mean temperature was 1.5° above the average for 33 years; rainfall, only a sprinkle, which was .74 of an inch below the average precipitation for many years; highest river, 13.9 feet; lowest, 11 feet. Highest temperature, 98°; lowest, 50°.

June—The mean temperature was 4.2° below the average for many years; rainfall, very near the average, the latter being .13 of an inch, while the rainfall for this month was .11 of an inch; solar halo on the twenty-fourth; highest river, 11 feet; lowest, 9 feet. Highest temperature, 91°; lowest, 51°.

July—This was the windiest month on record, giving from 816 to 2,149 miles more wind than is usual for this month; mean temperature, 2.2° below the average for 33 years; average rainfall for many years, .03 of an inch; this month gave only a sprinkle; two solar halos, and two parhelias, or sun dogs, on the ninth; highest river, 9 feet; lowest, 7.8 feet. Highest temperature, 98°; lowest, 56°.

August—The mean temperature was 1.4° above the average for 33 years; the highest temperature recorded occurred this month, and was 105°; rainfall, none, the average of many years being a sprinkle; the highest river, 7.8 feet; lowest, 7.3 feet. Highest temperature, 105°; lowest, 52°.

September—The mean temperature was 1.2° warmer than the average for 33 years; the average rainfall for many years was .11 of an inch; this month gave .08 of an inch, or a very small amount below the mean; lightning on the fifth and sixth; highest river, 7.10 feet; lowest, 7.3 feet; solar halo on the eighth. Highest temperature, 98°; lowest, 50°.

October—The mean temperature was 1.9° warmer than the average for 33 years; the average rainfall for many years was .72 of an inch, while this month only gave .02 of an inch, which is .70 of an inch below the average for many years; sheet and forked lightning on the sixth; solar halo on the twelfth; coronæ around the moon on the twenty-third; highest river, 7.7 feet; lowest, 7.5 feet. Highest temperature, 98°; lowest, 40°.

November—The mean temperature was 1.1° greater than the average for 33 years past; there were 2,705 miles more wind than usually sweeps over this station during November; this month was warmer, and gave more wind and a higher velocity, more rain, and more cloudy and rainy days than are usual for the third month of the rainy season. There were 9.44 inches more rain than the average for 36 years; rainfall for the month, 11.34 inches—the average for many years being only 1.90 inches; there were three frosts; highest river, 21.2 feet; lowest, 7.5 feet; first frost of Autumn, November twelfth. Highest temperature, 77°; lowest, 38°.

December—The mean temperature was 2.1° warmer than the average of the 33 years; the rainfall was 5.76 inches, which is 1.11 inches more than the average precipitation of 36 years. There was a lunar halo on the twenty-fourth, and five light frosts; highest river, 23.9 feet; lowest, 17.2 feet. Highest temperature, 65°; lowest, 38°.

We find by the above annual review that the mean temperature for each month was above the average of many years, except June and July; these months were below the average.

The mean temperature for the year 1885, is 61.2°, while the average for 34 years is 60.2°, showing the year 1885 to have been a warmer one than usual. The rainfall from January to June was the least ever known to have been precipitated, and the rainfall from September to December thirty-first was the most ever precipitated, except in 1852, when 19.41 inches were measured against 17.21 inches for 1885. Highest temperature for the year 1885, was 105° in July; the lowest, 34° in January.

January, 1886—The mean temperature for January was 1.3° below the average of many years; the rainfall was 7.95 inches, which is 4.18 inches in excess of the average precipitation during the last 30 years. There were killing frosts on nine days; and lightning in the northeast on the twentieth, after the heaviest wind storm that has ever visited Sacramento. Lightning, in January, is an unheard of thing for this vicinity.

The maximum velocity of wind was over forty-four miles per hour on the twentieth, and on one occasion during the day five miles was made in five minutes, which is at the rate of sixty miles per hour.

The highest river was 25.6 feet on the twenty-eighth; the lowest river was 17.1 feet on the eighteenth. This was the highest water in the river since February 4, 1881, when it reached 26.6 feet. First killing frost of this season was on January second. Highest temperature, 62°; lowest, 28°.

February, 1886—The mean temperature for February was 53.3°, which was 2.3° warmer than the average for many years. Average rainfall, 2.866 inches, showing February to have been 2.576 inches below the average of many years. A brilliant meteor passed to the west in the north on the thirteenth; a hailstorm on the twenty-eighth. Highest water in the river, 25 feet on the first; and the lowest, 14.8 feet on the twenty-eighth.

Peach trees and other fruits in bloom as early as the fifteenth. Highest temperature, 73°; lowest, 38°.

March, 1886—The mean temperature was 3° cooler than the average of many years. The average for the month was 52.1°, and for 33 years was 55.1°. Average rainfall, 2.91 inches for 36 years; the rainfall for March was 2.68, or nearly normal. Highest water in the river, 19.5 feet on the sixth; lowest, 17.5 feet on the thirty-first. Highest temperature, 72°; lowest, 38°.

April, 1886—The mean temperature was 55.5°, being 3.8° below the average temperature for April during the past 33 years. The average rainfall during April for 36 years was 1.87 inches, while April, 1886, gave 4.08 inches, or an excess of 2.21 inches over the average precipitation of many years. The highest river was 23.8 feet on the twenty-third; the lowest, 17.5 feet on the first. Last frost of the season April fourth. Highest temperature, 80°; lowest, 39°.

May, 1886—The mean temperature was 62°; being 2° cooler than the average monthly mean temperature for many years. May, 1860, gave the lowest monthly average; being 59.8°, which was 2.2° cooler than May, 1886. The highest average monthly mean was in 1865, 70°; which was 8° above the average of May, 1886. The rainfall was but .07 of an inch, while the average precipitation of many years was .71 of an inch, showing this month to have been below the average amount of rainfall. Highest water in the river, 23 feet on the first; lowest water in the river, 21 feet on the thirtieth and thirty-first. Highest temperature, 94°; lowest, 44°.

June, 1886—The average June temperature for 33 years past was 70.3°, while the average temperature June, 1886, was 69°, or 1.3° below the average of many years. The average rainfall for 36 years past was .13 of an inch, while June, 1886, gave no rainfall. The greatest rainfall for June was 1.45 inches in 1884. Highest water in the river, 20.8 feet on the first and second; lowest water in the river, 13.9 feet on the thirtieth. Highest temperature, 98°; lowest, 52°.

July, 1886—The mean average monthly temperature for July during the past 33 years was 73.2°. The mean for July, 1886, was 72°, which is 1.2° below the average for many years. The average rainfall for the past 37 years was .03 of an inch. There was no rainfall during July, 1886. The greatest amount ever recorded in July was .63 of an inch in 1860 and .55 of an inch in 1861. The highest water in the river was 13.7 feet on the first; the lowest water in the river was 10 feet, on the thirty-first. Highest temperature, 105°; lowest, 52°.

August, 1886—The mean average temperature for August for the past 33 years was 71.7°, and the mean temperature for August, 1886, was 71.6°, being a normal temperature. The average precipitation of rain in August for 37 years past was .003 of an inch, while August, 1886, there was none. The heaviest rainfall was but .08 of an inch in 1864. The highest river was 10 feet on the first, and the lowest, 8.2 feet, from the twenty-seventh to the thirty-first, inclusive. Highest temperature, 102°; lowest, 53°.

Gales of 25 miles per hour and over for each month during 1885, and for January, February, March, April, May, June, July, and August, 1886, will be found as follows:

January, 1885	None.
February 12, 1885	N.W. 25 miles.
February 23, 1885	N.W. 31 miles.
March, 1885	None.
April, 1885	None.
May 12, 1885	S. 25 miles.
May 22, 1885	N.W. 30 miles.
June, 1885	None.
July 2, 1885	S. 25 miles.
August, 1885	None.
September, 1885	None.
October, 1885	None.
November 16, 1885	S.E. 27 miles.
November 17, 1885	S.E. 36 miles.
November 22, 1885	S.E. 32 miles.
November 24, 1885	S.E. 32 miles.
December 7, 1885	N.W. 25 miles.
January 1, 1886	N.W. 38 miles.
January 20, 1886	S.E. 44 miles.
January 21, 1886	S. 28 miles.
January 22, 1886	S.E. 28 miles.
January 23, 1886	S.E. 30 miles.
February 15, 1886	N.W. 32 miles.
February 26, 1886	S.W. 26 miles.
March 10, 1886	N.W. 28 miles.
March 11, 1886	N.W. 26 miles.
March 14, 1886	N.W. 37 miles.
March 24, 1886	N.W. 30 miles.
March 25, 1886	N.W. 27 miles.
March 26, 1886	N.W. 30 miles.
March 27, 1886	N.W. 30 miles.
April 6, 1886	S. 28 miles.
April 19, 1886	N.W. 36 miles.
May 1, 1886	N.W. 27 miles.
June 12, 1886	N.W. 42 miles.
July, 1886	None.
August, 1886	None.

The following table gives the total number of clear, fair, and cloudy days, and the number of days on which rain was precipitated for each year from 1878 to 1885, inclusive, and for January, February, March, April, May, June, July, and August, 1886:

YEAR OF—	Clear Days.	Fair Days.	Cloudy Days.	Days on which Rain Fell.
1878	225	81	59	67
1879	223	96	46	69
1880	244	62	60	58
1881	233	68	64	69
1882	251	71	43	62
1883	262	77	26	46
1884	239	69	58	69
1885	228	88	49	57
Totals	1,905	612	405	497
Averages	238.1	76.5	50.6	62.1
Total number of clear, fair, cloudy, and rainy days up to September 1, 1886	172	53	18	48

AVERAGE ANNUAL AND SEASONAL TEMPERATURES.

The statement below shows the average temperature, for each year, for 33 years; the Spring, for thirty-four years; Summer and Autumn, for 33 years, and the average Winter temperature for 32 years. The coldest year, inferring from the average temperature, was that of 1880—57.5°; the warmest was 1864—62.8°; the mean average for the past 33 years being 60.2°, showing the coldest to have been 2.7° below the mean average, while the warmest year being that of 1864, when it was 2.6° above the mean average for 33 years. By careful study of the following table, one is struck by the slight difference between the coldest and warmest year, as compared with a 33 years' average, generally not more than 3°. That is, we might safely say that the average temperature of any year is not likely to vary more than 3° from 60°, either way, between the hottest and coldest year, as compared with the mean average temperature for the past 33 years:

YEAR.	Mean Annual Temperature.	Mean Spring Temperature.	Mean Summer Temperature.	Mean Autumn Temperature.	Mean Winter Temperature.
1853	62.6	62.9	74.3	69.0	----------
1854	59.5	58.3	72.4	60.0	47.3
1855	59.5	57.7	72.2	60.5	48.0
1856	60.1	59.9	71.9	60.4	48.9
1857	60.7	61.7	71.5	60.9	47.5
1858	59.5	59.6	70.3	60.9	48.2
1859	58.7	57.2	70.4	61.1	46.6
1860	59.0	56.5	70.8	60.3	46.5
1861	60.1	59.8	69.8	60.4	49.5
1862	62.2	57.6	72.5	63.7	48.3
1863	60.3	61.4	71.8	61.5	47.1
1864	62.8	62.2	73.5	62.6	49.8
1865	61.0	61.0	73.1	62.9	48.9
1866	62.1	59.7	74.8	63.7	51.4
1867	59.9	58.3	71.9	62.1	48.7
1868	60.1	59.8	71.5	61.4	48.1
1869	60.4	58.9	72.1	62.3	48.2
1870	59.6	57.0	71.2	61.7	48.7
1871	59.6	58.9	70.8	59.9	47.7
1872	60.4	60.5	71.6	59.6	50.2
1873	60.7	61.6	70.4	62.9	50.0
1874	59.8	59.0	71.3	62.1	47.6
1875	62.5	63.3	72.1	60.8	48.2
1876	61.7	59.9	74.6	62.3	49.0
1877	61.2	61.2	73.5	63.4	49.9
1878	61.3	60.5	72.9	62.5	49.9
1879	60.3	59.3	72.9	60.9	49.2
1880	57.5	55.0	69.1	59.9	44.5
1881	59.2	60.4	68.5	58.5	51.0
1882	58.5	57.6	71.1	58.8	45.9
1883	58.8	58.5	72.4	60.1	45.4
1884	58.8	57.9	69.8	60.0	45.9
1885	61.2	61.8	70.1	62.8	50.0
1886	----------	56.5	70.9	----------	49.4
Totals	1,987.6	2,021.4	2,436.6	2,029.9	1,595.5
Averages	60.2	59.5	71.7	61.5	48.3

HIGHEST AND LOWEST TEMPERATURE AT SACRAMENTO, FROM 1878, TO AUGUST 31, 1886, INCLUSIVE.

YEAR.	Highest Temperature.	Lowest Temperature.
1878	100°, August	24°, December.
1879	103°, August	25°, December.
1880	98°, July	25°, January.
1881	99°, July	32°, December.
1882	100°, August	27°, December.
1883	103°, July	22°, January and February.
1884	100°, August	21°, February.
1885	105°, August	34°, January.
1886, up to September 1	105°, July	28°, January.

The following table of rainfall at Sacramento, from September, 1849, to August 31, 1886, was collated from the records of Dr. T. M. Logan, Dr. F. W. Hatch, and those of the United States Signal Service:

YEAR.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total for Year.	Season of.	Inches.
1849	--------	--------	--------	--------	--------	--------	--------	--------	.25	1.50	2.25	12.50	--------	1849–50	36.00
1850	4.50	.50	10.00	4.25	.20	none	none	none	none	none	sprin	sprin	19.50	1850–51	4.71
1851	.65	.35	1.88	1.14	.69	none	none	none	1.00	.18	2.14	7.07	15.10	1851–52	17.98
1852	.58	.12	6.40	.19	.30	none	none	none	sprin	none	6.00	13.41	27.00	1852–53	36.36
1853	3.00	2.00	7.00	3.50	1.45	sprin	sprin	none	sprin	sprin	1.50	1.54	19.99	1853–54	20.06
1854	3.25	8.50	3.25	1.50	.21	.31	none	sprin	sprin	1.01	.65	1.15	19.83	1854–55	18.62
1855	2.76	3.46	4.20	4.32	1.15	.01	none	none	sprin	none	.75	2.00	18.56	1855–56	13.76
1856	4.92	.69	1.40	2.13	1.84	.03	none	none	sprin	.20	.65	2.40	14.26	1856–57	10.46
1857	1.38	4.80	.68	sprin	sprin	.35	none	sprin	none	.66	2.41	2.63	12.91	1857–58	14.99
1858	2.44	2.46	2.88	1.21	.20	.10	.01	sprin	sprin	3.01	.15	4.34	16.80	1858–59	16.04
1859	.96	3.91	1.64	.98	1.04	none	none	none	.02	none	6.48	1.83	16.86	1859–60	22.06
1860	2.31	.93	5.11	2.87	2.49	.02	.63	none	.06	.91	.18	4.28	19.19	1860–61	16.18
1861	2.67	2.92	3.32	.48	.59	.14	.55	none	none	sprin	2.17	8.64	21.38	1861–62	36.10
1862	15.04	4.26	2.80	.82	1.81	.01	none	.01	none	.36	sprin	2.33	27.44	1862–63	11.59
1863	1.73	2.75	2.36	1.69	.36	none	none	none	sprin	none	1.49	1.82	12.20	1863–64	7.79
1864	1.08	.19	1.30	1.08	.74	.09	none	.08	sprin	.12	6.72	7.87	19.27	1864–65	22.59
1865	4.78	.71	.48	1.37	.46	none	sprin	none	.08	.48	2.43	.36	11.15	1865–66	17.91
1866	7.70	2.01	2.02	.48	2.25	.10	.02	none	none	sprin	2.43	9.51	26.52	1866–67	25.32
1867	3.44	7.10	1.01	1.80	.01	none	none	none	.01	none	3.81	12.85	30.03	1867–68	32.79
1868	6.04	3.15	4.35	2.31	.27	sprin	none	none	none	none	.77	2.61	19.50	1868–69	16.64
1869	4.79	3.63	2.94	1.24	.65	.01	none	none	sprin	2.12	.85	1.96	18.19	1869–70	13.57
1870	1.37	3.24	1.64	2.12	.27	sprin	sprin	sprin	none	.02	.58	.97	10.21	1870–71	8.47
1871	2.08	1.92	.69	1.45	.76	sprin	none	none	sprin	.21	1.22	10.99	19.32	1871–72	24.05
1872	4.04	4.74	1.94	.61	.28	.02	none	none	sprin	.22	1.93	5.39	19.17	1872–73	14.19
1873	1.23	4.36	.55	.51	none	sprin	.02	sprin	none	.31	1.21	10.01	18.20	1873–74	22.92
1874	5.20	1.86	3.05	.89	.37	sprin	sprin	none	.05	2.26	3.80	.44	17.92	1874–75	17.70
1875	8.70	.55	.80	sprin	sprin	1.10	none	none	none	.44	6.20	5.52	23.31	1875–76	26.31
1876	4.99	3.75	4.15	1.10	.15	none	.21	.02	sprin	3.45	.30	none	18.12	1876–77	9.19
1877	2.77	1.04	.56	.19	.64	.01	sprin	sprin	none	.73	1.07	1.43	8.44	1877–78	24.86
1878	9.26	8.04	3.09	1.07	.17	none	none	none	.29	.55	.51	.47	23.45	1878–79	17.85
1879	3.18	3.88	4.88	2.66	1.30	.13	sprin	sprin	none	.88	2.05	3.41	22.37	1879–80	26.47
1880	1.64	1.83	1.70	14.20	.76	none	sprin	none	none	none	.05	11.81	31.99	1880–81	26.57
1881	6.14	5.06	1.37	1.64	sprin	.50	sprin	none	.30	.55	1.88	3.27	20.71	1881–82	16.51
1882	1.89	2.40	3.78	1.99	.35	.10	sprin	none	.57	2.63	3.22	1.13	18.06	1882–83	18.11
1883	2.23	1.11	3.70	.67	2.85	none	none	none	.90	.97	.61	.44	13.48	1883–84	24.78
1884	3.43	4.46	8.14	4.32	.06	1.45	none	sprin	.60	2.01	none	10.45	34.92	1884–85	16.58
1885	2.16	.49	.08	.68	sprin	.11	sprin	none	.08	.02	11.34	5.76	20.72	1885–86	32.27
1886	7.95	.29	2.68	4.08	.07	none	none	none	--------	--------	--------	--------	--------	--------	--------
Totals	142.19	103.46	107.82	71.54	25.79	4.59	1.14	.11	4.21	25.80	79.80	172.19	707.07	----------	737.74
Averages	3.843	2.796	2.913	1.934	.697	.124	.031	.003	.114	.697	2.217	4.654	19.641	----------	19.939

I. REPORT ON THE TOPOGRAPHY, BOTANY, CLIMATOLOGY,

AND

DISEASES OF SURPRISE AND GOOSE LAKE VALLEYS.

By GEORGE M. KOBER, M.D., U. S. A., Fort Bidwell; Modoc County correspondent of the Board. Supplemented by extracts from Reports of W. MATTHEWS, M.D., U. S. A., WM. H. PATTERSON, M.D., Cedarville, and JOHN M. FORREST, M.D., Alturas, Modoc County.

In my description of the topography of this section, I shall confine myself to two important valleys of Modoc County, geographically known as Surprise and Goose Lake Valleys.

Surprise Valley is situated on the eastern slope of the Warner Mountains, extending almost north and south, about sixty miles in length and from six to eight miles in width. A high divide on the north separates this valley from Warner Valley, Oregon; on the west from Goose Lake Valley; on the south a long cañon connects it with the sagebrush plains of Nevada, and on the east a lower range of mountains separates it from Coleman and Long Valleys in Nevada. It is a monoclinal valley, of moderately inclined beds of a plutonic outflow. The strata dip towards the Sierra Nevadas, westward; the elevation of the valley above the sea level is four thousand six hundred and eighty feet. The Warner Mountains, like the great Sierra Nevadas, of which they are doubtless a portion, have a slate base, and superimposed are strata of quartz. Sandstone also abounds near the surface, and forms the greater portion of the lower range of hills. The average elevation of these mountains is about six thousand feet, although some of the peaks, as Mount Bidwell, attain the respectable height of nearly eight thousand feet above the level of the sea, and remain snow-clad until the middle of July.

Surprise Valley is destitute of timber, but the numerous ravines and cañons traversing the mountains contain fine forests of pine and cedar. The soil is composed of disintegrated basalt, sand, and clay, and is very fertile. Below this soil is found a bed of gravel of variable depth. Most of the wells are sunk through a deposit of gravel, from fifteen to thirty feet in depth, when "hard pan" is reached, which may be a clay bank or a peculiar sandstone formation.

The valley contains three lakes, of about equal size, known as the Upper, Middle, and Lower Lakes, their combined area being about one hundred square miles. These lakes have no outlet, and desiccation has concentrated the salts in all of them. The water is intensely alkaline to the taste. They are shallow for a considerable distance from the shores, and receive their water supply from the numerous streams of the Warner Mountains. The Middle and Lower Lakes have been known to dry up completely during several dry seasons, revealing a deposit of fine alkaline mud, which, when desiccated, looks white; and in the distance the former lake bed presents the appearance of a beautiful sheet of water. The water, doubtless, contains a large percentage of magnesia, sodium, soda, chlorine, sulphuric acid, and carbonate of lime. It is needless to observe that the lakes are not habitable by fishes, their only animal population being crustacea and the larvæ of insects.

The east side of the valley affords but very few water channels, as the eruptive hills or table lands are rather low, and do not condense much snow and moisture. Owing to this fact, and the comparative absence of erosive action, the eastern half, unlike the western half of the valley, has no rich alluvial deposits, and the soil is strongly impregnated with alkaline salts towards the lake, while the higher portions are composed of a mixture of sand and clay, which supports a more or less luxuriant growth of artemisia (sagebrush).

The town of Fort Bidwell is located about eight miles from the southern boundary of Oregon, and the same distance from Nevada, in latitude 42° 10′ north, longitude 43° 12′ west. The site is at least two miles north of the upper lake, on a gravelly slope which gradually ascends towards the foothills. A beautiful mountain stream drains the locality. This stream near its terminus, however, becomes sluggish, and in the course of time has deposited an immense amount of debris, and thus formed a peninsula, which extends for a mile and a half into the lake. The character of this land is essentially a "swamp," covered with typha latifolia. Numerous small ponds and sloughs are also observed. With this exception, the lower lands on the north and west side of the lake are natural meadows, and yield an excellent quality of grass. Some families live in these meadows, their wells being only from five to eight feet in depth. The higher lands are well adapted for agriculture, and in some localities require artificial moisture. Numerous fruit trees, consisting of apples, plums, pears, and peaches have been successfully cultivated and yield fine crops in the order named.

The town of Lake City is situated on the foothills, near the southwestern end of the upper lake; Cedarville at the mouth of a beautiful cañon west of the middle lake, and Eagleville near a cañon west of the lower lake. In these and other localities, the mountain streams have washed immense deposits into the lake, and thereby formed deltas of variable extent, according to the erosive power of the streams. Numerous farms are scattered throughout the valley, but more especially along the western half of the valley. The combined population of the valley is about three thousand. The scenery, notwithstanding the shallow shores of the lakes, presents many elements of beauty, combining, as it does, mountain and water scenery with a clear atmosphere and a good sprinkling of verdure. No wonder that the early pioneers of California, in their overland travel across the sagebrush plains of Nevada, upon their emergence through "'49 Canon," were suddenly impressed with its beauty, and named it "Surprise Valley."

Goose Lake Valley is located on the western slope of the Warner Mountains, and is about fifty-five miles in length, and twelve miles in width; elevation above the level of the sea, four thousand eight hundred feet. The valley extends nearly north and south, and is bounded on the east by the Warner Mountains, already described; on the west by eruptive hills of no great elevation, which, sixty miles further west, are known as the "lava beds," and former stronghold of the Modoc Indians. To the north, the valley is cut off by the watershed of the Chewaucan, and to the south by that of the Pitt River. It contains a fine sheet of water, known as Goose Lake, which is thirty miles in length, and about ten miles in width. The lake is shallow for a long distance from its northern, southern, and eastern shores, and has no outlet, but a slight elevation would connect it with the watershed of the Pitt River in the south. It receives its water supply from numerous mountain streams, notably from the Warner Range on the east, which maintain it in a more or less fresh condition. The water is slightly alkaline to the taste, but the lake abounds in fishes and water birds. The lakes of Oregon, Nevada, and California diminish in alkalinity as we approach the Sierra Nevadas. Goose Lake has never been known to dry up, although, during prolonged dry seasons, and, in fact, to a limited extent every Summer and Autumn, the water falls sufficiently to expose a vast tract of land on the southern and northern shores.

The scenery of this valley and lake presents many elements of beauty. The soil and geological formation is similar to that of Surprise Valley, with perhaps a larger admixture of clay. The best soil is found on the eastern half of the valley, or west slope of the Warner Mountains, owing, doubtless, to the erosive action of the elements and mountain torrents on the volcanic rocks which abound in this range. The soil of the west side of the valley is a mixture of clay and sand, impregnated with alkali, and supports a luxuriant growth of sagebrush. Along some of the watercourses on that side the soil is more fertile. The principal settlement is at Davis Creek, on a gradual slope towards the southeastern shores of the lake. Here the action of Davis Creek has formed a peninsula, which extends two and one half to three miles into the lake. This hamlet is about twenty-five miles in a northeastern direction from Alturas, the county seat. Another thrifty settlement, known as Willow Ranch, is located about fourteen miles north of Davis Creek; and still another settlement on New Pine Creek, ten miles north of the latter place, and close to the Oregon boundary line. The various mountain streams, especially those in the localities mentioned, have carried immense deposits into the lake and formed numerous deltas. This new formation is more or less marshy, and portions of it are covered with tules, but the land lying somewhat higher, is good meadow land, and the higher tracts, as in Surprise Valley, are specially adapted for the production of cereals, requiring not infrequently irrigation, especially for garden produce. Numerous settlements are scattered throughout the valley, some occupying the low lands, but most of the settlers have built their premises on the western slope of the Warner Mountains. It will be observed that Surprise Valley is bounded with low mountains on the east and high mountains on the west, while the inverse condition obtains in Goose Lake Valley. In consequence thereof, the latter valley receives a larger precipitation of snow and moisture, and is more exposed to the prevailing winds from the west. The arrangement of the mountains, the consequent water supply and fertility of the soil, also influences the settlement of the two valleys. While in Surprise Valley most of the settlements are in the west half of the valley, the majority of the people in Goose Lake Valley have selected the eastern half. The combined population is probably over two thousand.

Both valleys contain numerous thermal springs, especially Surprise Valley; some of these are very justly believed to possess medicinal properties. The alkaline taste and temperature of the water, 100° Fahrenheit, point to desirable properties in the treatment of rheumatic affections. Unfortunately no analysis has been made.

In this connection I wish to invite attention to the desirability of placing sufficient funds at the disposal of the State Board of Health or the State Analyst to furnish reliable analyses of such springs, wherever located throughout the State, in order that the physician, ever active in the interests of the people, may at least be enabled to give an honest opinion, when asked, about the "internal use" of such waters.

I need scarcely mention that an analysis of the alkaline lakes in Surprise Valley might benefit the resources of the State by inducing enterprising capitalists to utilize these waters in the manufacture of chemicals.

II. BOTANY OF SURPRISE AND GOOSE LAKE VALLEYS.

List of plants collected and analyzed during the Summer of 1878, in the vicinity of Fort Bidwell, California, by Assistant Surgeon W. Matthews, United States Army:

Ranunculaceæ.

Thalictrum Feudleri, woods near sawmill.
Ranunculus Cymbalavia, near hospital.
Ranunculus glaberrimus, wet ground on mountain side, beyond Horan's Ranch.
Ranunculus Nelsonii, near spring, behind officers' quarters.
Ranunculus Californica, foothills.
Aquilegia truncata, valley near stream, south of reservation.
Delphinium decorum, beyond sawmill, and elsewhere.
Pæonia Brownii, foothill, behind officers' quarters, and common elsewhere.

Berberidaceæ.

Berberis repens, common in the woods everywhere; has similar medicinal properties to Berberis Aqufolium—Oregon Grape.

Cruciferæ.

Erysenium asperum, near sawmill.

Violaceæ.

Viola aurea, foothills.
Viola Nuttallii, foothills, and near post.
Viola cucullata, common in damp places.
Viola Beckwithii, a variety with lower petals, partly blue, on dry, sandy ground, north of the village.

Caryophyllaceæ.

Stellaria longipes, wood along Willow Creek.
Stellaria borealis, wood along Willow Creek.
Arenaria Douglassii, wood along Willow Creek.

Portulaccaceæ.

Claytonia Chamissonis, near stream west of post.
Lewisia Rediviva, on dry ground north of village.

Malvaceæ.

Malvastrum.

Linaceæ.

Linum perenne, in the Government pasture.

Geraniaceæ.

Geranium Carolinianum, along the streams.

Rhamnaceæ.

Cæanothus velutinus, common in the woods and on the mountain sides, and forming the most tangled underwood on the warmer mountains.

Cæanothus prostratus, common in the woods and on the mountain sides, and forming the most tangled underwood on the warmer mountains. More common than the cæanothus velutinus.

Leguminosæ.

Hosackia Purshiava, in shady places.
Dalea.
Astragalus Purshii, common in dry situations.
Lathyrus Nevadensis, Goose Lake Valley.
Lapinus albicaulis, foothills.
Lapinus rivularis, foothills.

Rosaceæ.

Rosa Californica, common.
Prunus subcordata, foothills.
Prunus emarginata, foothills.
Prunus Andersonii, foothills.
Prunus demissa, foothills.
Purshia tridentata, foothills, near hospital, etc.
Cercocarpus ledifolias, sides of mountains.
Géum triflorum, shady places in the mountains.
Potentilla anserina, in the bottom lands.
Potentilla gracilis, in the bottom lands.
Crataegus rivularis, valley of stream one half mile west of post.
Amelanchier canadensis, borders of all streams in and near the mountains, etc.
Amelanchier alnifolia, borders of all streams in and near the mountains, etc.

Saxifragaceæ.

Tellenia parviflora, hill behind officers' quarters.
Ribes divaricatum, southwest corner of Government pasture.
Ribes cereum, rocks at bridge on road to sawmill.
Ribes sanguineum, deep woods on mountains, one thousand to two thousand feet above valley.
Ribes auream, along the mountain streams, and in the fields east of the village.

Onagraceæ.

Oenothera biennis, parade ground, etc.
Epilobiam paniculatum, near streams.
Epilobiam minutum, near streams.
Gayophytum romosissimum, dry situations.
Godetia viminea, foothills, near hospital.
Boisduvalia densiflora, fields east of village.

Cornaceæ.

Cornus Californica, banks of streams, common.

Caprifoliaceæ.

Symphoricarpus racemosus, in mountains.

Rubiaceæ.

Galium triflorum, common, near streams.
Galium boreale, common, near streams.

Compositæ.

Archillaea millifolium, in grassy places.
Artemisia ludoviciana, in desert places, common forms of "sagebrush."
Artemisia tridentata, in desert places, common forms of "sagebrush."
Cnicus occidentalis, foothills, near post.
Troximon glaucum, on parade grounds, etc.
Taraxacum dens-leonis, on the bottom, between the post and the village, some old residents say, "in 1878, that it was unknown here three or four years ago. Appears to become more frequent every year." (Kober.)

Ericaceæ.

Pyrola picta, in deep pine forests, one thousand to two or three thousand feet above the valley.
Pyrola aphylla, in deep pine forests, one thousand to two or three thousand feet above the valley.

Primulaceæ.

Dodecatheon Meadia, two or three varieties in moist open situations in the hills.

Asclepiodaceæ.

Gomphocarpus cordifolias, seen only in one locality on hillside, just north of creek, about a mile and a half southwest of hospital.

Gentianaceæ.

Gentiana affinis, on Lassen's Creek, Goose Lake Valley.
Frasera albicoaulis, Goose Lake Valley.

Polemoriaceæ.

Phlox cæspitosa, foothills.
Collomia grandiflora, foothills, west of post.

Hydrophyllaceæ.

Hydrophyllum capitatum, in ravine, half a mile west of post.
Nemophila parviflora, at the spring in rear of officers' quarters, and many other places.
Phacelia cirinata, near Jopp's ranch, etc.
Phacelia Menziesii, foothills, immediately west of officers' quarters.

Borraginaceæ.

Heliotropium carassavicum, foothills.
Lithos permam pilosum, on bottom lands and foothills.
Mertensia sibirica, woods, common.
Eritrichium Californicum, near race track.
Echinos permum Redowskii, on roadsides in the village.

Solanaceæ.

Petunia parviflora, parade ground, hospital grounds, etc.

Scrophulariaceæ.

Collinsia parviflora, common in valley and foothills.
Pentstemon duestus, Government pasture, a dwarf variety, found near the summit of Mt. Bidwell.
Pentstemon confertus, foothills, about a mile and a half southwest of post.
Pentstemon laetus, foothills, about a mile and a half southwest of post.
Mimulus manus, foothills.
Mimulus luteus, Jopp's hot spring and other places.
Mimulus primaloides, summits of Warner Mountains.
Veronica Americana, in the pasture between the post and village.
Veronica serpyllifolia, in the pasture between the post and village.
Castilleia parviflora, mountains.
Castilleia mineata, Government pasture, etc.

Labiatæ.

Scutellaria nana. This very rare plant was found on the first bench of the foothills, about a mile southwest of post.

Chenopodiacæ.

Chenopodium album, in cultivated grounds.

Orchidaceæ.

Cypripedium! candidum (?), perhaps a variety of C. candidum, found only in a very limited locality, just south of the road to Goose Lake, about two hundred yards beyond the old sawmill.

Liliaceæ.

Fritillaria pudica, seen about the first of April in the valley, various parts near post, and early in June on the summit of the mountains.
Scilla esculenta, near the lake.
Smilacina stellata, in moist woods.
Smilacina racemosa, in moist woods.

III. CLIMATOLOGY OF SURPRISE AND GOOSE LAKE VALLEYS.

1. *Temperature.*

Table No. 1 covers a period of twenty years, and may be regarded as an established standard of the climate of this beautiful mountain valley of California. It is my impression that the climate of Goose Lake Valley does not materially differ from that of Surprise Valley, except that it receives a larger amount of precipitation of moisture, in the form of snow, during the Winter months.

It will be observed that the mean temperature for twenty years is 50.3° F. This, however, should not mislead the reader, since a close analysis will at once indicate that the amount of heat is by no means equably distributed, and this would be still more apparent could the columns and pages of individual observations be presented here. October, as regards temperature, is the typical month of the year. The mean temperature of this month for twenty years differs but two degrees from the mean annual temperature for the same period.

The highest temperature observed in any one month was 100° F., in July, 1876; and the next highest 99°, in August, 1870 and 1879. The lowest temperature in any one month was 19° below zero, in February, 1884. Absolute range during a period of twenty years, 119°. July and August are the hottest months in the year, and January, February, and December the coldest months. Frosts occur late in the Spring and early in the Fall.

A study of the tables, especially of No. 3, will indicate that a striking peculiarity of this climate is the extreme range of temperature, particularly noticeable during the months of July, August, September, and October. A daily variation of 50° is not uncommon, and even a daily range of 62° has been observed in August.

This excessive diurnal variation is intimately connected with the dryness of the atmosphere. The absence of watery vapor permits the surface of the earth to be rapidly heated by the rays of the sun, and likewise favors rapid radiation after the maximum is reached. As a result, we have often very warm days, and excessively cool nights—a very important feature of this climate from a sanitary point of view. In my discussion of some of the prevalent diseases of the community, I will have an opportunity to point out the relations of cause and effect. It may be, because the greater portion of my professional life has been spent at mountainous posts on the middle and northern plateau, where extreme ranges of temperature are especially observed, that I have become oblivious to other conditions by assuming that the great changes in temperature are the chief cause of a certain class of diseases. I shall endeavor, however, to present the facts and opinion unbiased, not doubting for a moment that elsewhere other factors may and do enter into the production of disease, and that I may be entirely wrong in my interpretation of the relations between this climate and some of the prevalent diseases.

2. *Precipitation.*

An analysis of the meteorological tables with reference to the amount of precipitation, will indicate that the "rainy season" during the Winter and Spring months is fairly well defined, and the amount of precipitation in the form of snow is frequently excessive.

During the Summer and Fall, or the "dry season," the amount of precipitation is hardly appreciable; whole months often pass without bringing us a shower. Dews are rarely, if ever, observed. When it is sufficiently cool at night to condense the little moisture that is in the atmosphere, without precipitation in the form of rain or snow, it is deposited in the shape of frost.

The dryness of the atmosphere is partly accounted for by the elevation, but more especially the geographical location of the valley, since the prevailing winds from the west naturally condense most of their moisture upon the western slope of the Sierra Nevadas; but there seems to be a remarkable drying power in the atmosphere of California, as shown by the frequent absorption of clouds. I have observed time and time again, even during the dry season, an ample supply of clouds and a good prospect for rain, only to be disappointed by the thirsty air.

Table No. 3 shows the relative humidity from July 1, 1885, to June 30, 1886, saturation being one hundred. The months of June, July, August, September, and even October, show the lowest relative humidity, and these are also the warmest months, and characterized by extreme daily ranges of temperature. The rainy season begins in the second half of October, and the relative humidity continues to rise until January, and then gradually decreases; exceptions are, however, frequently noted. It will be observed that the mean humidity for the year is only 57.7 per cent. Professor Parkes observes, p. 88, Vol. II: "The most agreeable amount of humidity to most healthy people is when the relative humidity is between seventy and eighty per cent. In chronic lung diseases, however, a very moist air is generally most agreeable and allays cough."

In the article on catarrhal affections, it will be shown that the greatest frequency of these disorders coincides with that of the greatest relative humidity, which, during the months mentioned, may for a few days amount to complete saturation.

3. *Wind.*

The prevailing direction of the wind is south and west, and is seldom observed to blow from other points, although during the severe cold weather, the wind usually comes from the north and northwest. As will be seen from Table No. 4, it is rarely violent in force, yet a gentle breeze can be nearly always observed. The maximum velocity for twenty-four hours generally occurs shortly after midnight and noon. It comes from the south during the day and from the west during the night.

4. *Electricity.*

Observers of this phenomena must have noticed a sensible increase in the number and violence of thunder storms on this coast within the past few years; this is especially noticeable during the present year, many of them nearly equaling an eastern thunder storm in the display of atmospheric electricity.

Two cloudbursts occurred in the Warner Range of mountains near Lake City and Eagleville, during the month of July, 1886, the water rushing down, carrying with it a large amount of debris, rocks, trees, etc.

TABLE No. 1.

Meteorological Report of Fort Bidwell, California, from July, 1866, to June 30, 1886.

Months.	Temperature.			Prevailing Wind	Rainfall in Inches	Temperature.			Prevailing Wind	Rainfall in Inches
	Mean.	Max.	Min.			Mean.	Max.	Min.		
	1866–67.					1867–68.				
July	------	------	------	------	------	75.6	96	51	S.	.10
August	71.3	94	54	W.	.12	75.6	93	61	S.W.	.28
September	65.4	90	37	N.W.	.00	62.4	88	52	S.W.	.56
October	51.0	77	28	S.	.20	49.3	71	29	S.W.	.16
November	43.1	72	25	S.	.76	37.3	59	26	W.	.72
December	35.4	47	19	S.	1.16	52.7	55	9	S.W.	1.64
January	32.4	51	15	N.	2.40	10.2	40	—18	N.	.70
February	31.3	48	12	N.	.96	14.9	43	—18	N.	.08
March	26.6	51	0	N.	1.34	33.3	58	14	W.	.80
April	------	------	------	------	------	42.7	69	30	W.	1.20
May	59.3	77	43	S.	.00	52.8	83	30	N.W.	.50
June	68.6	92	44	S.	.12	61.9	85	35	S.	.82
For the year	48.4	94	0	S.	7.06	47.4	96	—18	S.W.	7.56
	1868–69.					1869–70.				
July	71.2	95	50	S.W.	.00	73.1	94	51	S.W.	.14
August	71.8	93	57	W.	.00	71.0	97	50	S.W.	.02
September	61.6	87	45	W.	.04	60.7	85	36	S.W.	.90
October	53.3	79	28	S.W.	.01	50.5	78	31	W.	.00
November	40.3	66	19	S.	.16	43.0	74	24	S.W.	2.37
December	35.0	65	16	S.W.	1.80	31.4	57	10	S.	2.30
January	32.1	51	10	N.W.	3.80	31.6	55	2	S.W.	2.71
February	30.8	44	5	S.	.08	35.9	61	6	S.	2.30
March	41.0	67	23	S.	1.40	35.7	63	4	S.W.	1.60
April	49.6	85	30	S.W.	.96	49.7	78	18	S.W.	1.41
May	60.4	87	41	S.W.	.14	58.4	91	27	S.W.	1.43
June	70.8	97	54	S.W.	.04	64.9	89	33	W.	.68
For the year	51.5	97	5	S.W.	8.43	50.5	97	2	S.W.	15.86
	1870–71.					1871–72.				
July	76.4	96	44	S.	.76	72.9	92	43	W.	.76
August	74.2	99	38	S.	.05	72.9	91	39	W.	.02
September	64.8	88	33	S.W.	.00	61.6	84	28	W.	.40
October	49.4	79	22	S.W.	.03	49.4	79	22	S.W.	.20
November	39.1	67	21	S.W.	1.05	35.8	61	15	S.W.	1.58
December	21.7	47	— 8	S.W.	4.55	35.1	53	12	S.W.	3.25
January	31.3	46	5	S.	1.22	31.2	50	7	S.W.	1.16
February	33.7	52	17	W.	.92	37.4	56	7	S.W.	3.97
March	37.0	58	4	W.	1.00	40.2	60	21	S.W.	1.32
April	45.0	70	9	W.	.00	40.5	68	19	S.	.77
May	50.8	84	22	W.	1.94	57.6	82	28	S.	1.82
June	70.2	94	31	W.	.16	67.7	89	40	S.	.06
For the year	49.5	99	— 8	W.	11.68	50.2	92	7	S.W.	15.31

Meteorological Report of Fort Bidwell—Continued.

Months.	Temperature.			Prevailing Wind.	Rainfall in Inches.	Temperature.			Prevailing Wind.	Rainfall in Inches.
	Mean.	Max.	Min.			Mean.	Max.	Min.		
	1872–73.					1873–74.				
July	70.5	93	38	S.	.00	73.8	96	43	S.	.14
August	69.2	93	45	S.	.26	70.7	94	38	S.	.21
September	56.9	83	29	S.	1.18	61.5	85	24	S.	.40
October	50.8	75	27	S.	.46	44.8	76	12	S.	.63
November	32.1	52	9	S.	1.69	40.2	57	20	S.	1.14
December	32.1	46	7	S.	1.94	24.8	41	— 15	S.	3.29
January	35.4	50	15	S.	2.22	27.7	48	5	N.	1.51
February	27.8	42	4	S.	1.66	25.1	49	1	S.	1.07
March	41.2	67	13	S.	.60	30.8	50	9	S.	1.05
April	42.5	72	15	S.	2.06	43.8	67	25	S.	1.12
May	51.5	80	27	S.	.78	55.4	80	30	S.	.64
June	64.1	85	32	S.	.10	59.1	86	34	S.	1.06
For the year	47.8	93	4	S.	12.95	46.5	96	— 15	S.	12.26
	1874–75.					1875–76.				
July	75.5	95	48	S.	.05	74.7	94	41	W.	.00
August	57.0	86	45	S.	.27	72.3	92	39	W.	.05
September	61.0	85	31	S.	.00	65.2	87	39	W.	.00
October	51.1	76	26	S.	.37	59.2	87	32	S.	1.80
November	36.3	51	16	S.	1.37	38.4	65	25	S.W.	2.62
December	30.2	52	10	S.	.13	37.2	61	20	S.	1.54
January	26.9	43	— 4	S.	2.10	30.0	63	2	S.	1.88
February	28.4	46	0	S.	.07	34.8	76	12	S.	.32
March	33.6	55	18	W.	2.15	38.8	80	9	W.	.80
April	50.7	78	12	W.	.45	50.4	80	18	W.	.53
May	55.1	75	30	W.	1.30	54.0	80	25	S.E.	.98
June	63.1	88	29	W.	1.00	67.3	97	33	S.	.43
For the year	47.4	95	— 4	S.	9.26	51.7	97	2	W.	10.95
	1876–77.					1877–78.				
July	67.4	100	39	S.W.	.11	72.0	96	46	W.	.10
August	61.2	90	38	S.	.00	69.3	95	42	W.	.35
September	62.2	91	39	S.	.00	61.6	91	40	W.	.10
October	49.4	87	20	S.	3.48	51.9	80	20	S.W.	.80
November	32.0	56	12	S.	4.32	44.7	66	27	W.	3.03
December	26.0	54	5	N.	.25	33.9	57	— 2	S.W.	.35
January	26.4	65	— 10	N.	2.00	29.6	45	— 4	S.W.	.75
February	38.0	69	13	S.	3.30	35.7	53	16	S.W.	4.65
March	43.2	80	18	S.	3.28	45.1	70	20	S.W.	2.35
April	47.0	82	26	S.	2.14	48.9	79	25	S.W.	1.05
May	50.7	80	32	S.	4.66	55.4	83	30	S.	.82
June	60.8	87	38	S.	2.00	68.1	90	40	W.	.20
For the year	47.2	100	— 10	S.	25.54	51.3	96	— 4	S.W.	14.45

Meteorological Report of Fort Bidwell—Continued.

Months.	Temperature.			Prevailing Wind	Rainfall in Inches	Temperature.			Prevailing Wind	Rainfall in Inches
	Mean.	Max.	Min.			Mean.	Max.	Min.		
	1878–79.					1879–80.				
July	71.9	93	41	S.	.25	71.8	96	41	W.	.30
August	73.9	96	44	W.	.37	73.8	99	45	S.	.30
September	61.0	89	36	W.	.70	65.6	91	34	S.	.10
October	50.4	78	22	W.	.30	50.9	77	28	W.	.63
November	42.8	66	18	S.	.25	41.7	70	17	S.	1.00
December	32.0	57	6	S.	.20	30.4	59	— 8	S.W.	.95
January	30.0	67	0	S.W.	1.00	31.2	60	1	S.W.	1.20
February	41.1	61	15	S.	2.86	31.6	54	6	S.	1.10
March	46.1	84	22	W.	.95	42.7	63	17	S.	.86
April	50.6	77	26	S.	.90	47.3	72	24	S.	2.96
May	49.2	76	31	S.W.	1.40	49.9	77	31	S.	2.76
June	62.5	90	38	S.W.	.15	65.4	85	40	S.	.26
For the year	50.9	96	0	S. & W.	9.33	50.2	99	— 8	S.	12.42
	1880–81.					1881–82.				
July	73.2	91	45	S.	.72	71.7	95	48	S.W.	.32
August	69.9	89	41	S.	.42	72.2	97	44	S.W.	.10
September	65.7	86	38	S.	.05	64.7	90	42	S.W.	.24
October	57.8	78	26	S.	.50	49.2	79	24	S.W.	3.55
November	37.5	67	14	N.	.56	41.2	65	22	S.W.	2.87
December	38.8	66	20	S.	1.83	37.9	63	18	S.W.	3.40
January	34.9	64	21	S.	2.18	33.9	64	4	S.W.	3.44
February	41.8	68	16	S.W.	2.40	26.4	49	— 12	S.W.	2.82
March	44.5	75	22	N.W.	.75	37.3	64	20	S.W.	1.46
April	55.9	80	35	S.W.	3.02	45.9	75	26	S.W.	1.72
May	62.0	87	34	W.	1.78	56.0	82	29	S.W.	.64
June	65.4	90	39.	S.W.	1.59	65.5	85	36	W.	.38
For the year	53.9	91	14	S.	15.80	50.1	97	— 12	S.W.	20.94
	1882–83.					1883–84.				
July	73.4	92	36	W.	.16	73.8	90	50	N.W.	.00
August	72.1	93	44	W.	.00	69.0	87	43	N.W.	.00
September	61.9	85	34	W.	.48	65.6	85	42	N.W.	.00
October	46.1	68	24	W.	2.73	47.8	76	27	N.W.	1.18
November	35.4	62	8	N.W.	.92	42.4	68	13	N.W.	1.14
December	37.8	70	— 1	W.	3.03	38.0	71	18	N.W.	1.06
January	29.4	54	— 18	W.	2.04	33.6	56	5	N.W.	1.14
February	28.8	57	— 9	N.W.	.64	31.0	68	— 19	N.W.	2.96
March	49.3	76	27	W.	.76	37.4	63	15	N.W.	.72
April	44.6	67	22	W.	1.56	44.2	77	28	S.W.	.68
May	56.6	78	27	N.W.	1.30	56.6	77	28	N.W.	.40
June	66.7	87	41	N.W.	.00	58.4	81	37	N.W.	4.29
For the year	50.2	93	— 18	W.	13.62	49.8	90	— 19	N.W.	13.57

METEOROLOGICAL REPORT OF FORT BIDWELL—Continued.

Months.	Temperature.			Prevailing Wind	Rainfall in Inches	Temperature.			Prevailing Wind	Rainfall in Inches
	Mean.	Max.	Min.			Mean.	Max.	Min.		
	1884–85.					1885–86.				
July	63.9	82	41	N.W.	.40	70.6	90	49	N.	.38
August	70.0	88	43	N.W.	.08	72.4	94	53	S.	.00
September	53.7	77	30	N.W.	1.55	64.0	88	33	S.	.09
October	52.8	78	25	N.W.	.73	57.6	86	28	W.	.41
November	46.2	70	29	N.W.	.00	41.1	74	20	W.	1.28
December	38.8	58	2	N.	4.10	32.2	69	15	W.	1.05
January	35.7	57	3	N.	1.06	32.2	55	—2	S.	5.91
February	53.2	66	21	N.	2.66	42.8	64	21	W.	1.22
March	46.7	75	20	N.	.12	41.0	70	24	N.W.	.78
April	51.4	75	31	N.	3.45	44.9	72	27	S.W.	2.20
May	56.6	90	30	N.	1.99	56.4	85	21	S.W.	1.44
June	57.8	92	35	N.	2.78	65.3	92	33	W.	.78
For the year	52.5	92	2	N.& N.W.	18.92	51.7	94	—2	W.	15.54

NOTE.—The mean is from the standard thermometer. The maximum and minimum observations are made with self-registering thermometers.

TABLE No. 2.

Showing the Mean Temperature of each Month for Twenty Years.

July	72.3	January	30.3
August	70.5	February	33.5
September	62.3	March	39.7
October	51.1	April	47.1
November	39.5	May	55.2
December	34.1	June	64.7
Mean			50.3

TABLE No. 3.

Showing the Mean Temperature at 7 A. M., 3 P. M., and 11 P. M.; the Greatest Daily and Monthly Ranges of Temperature, and the Monthly Mean Dewpoint and Humidity for each Month in the Year.

	1885.						1886.						For the Year
	July	August	September	October	November	December	January	February	March	April	May	June	
7 A. M.	49.8	43.7	39.5	36.6	34.7	31.2	25.4	33.4	29.0	35.2	44.3	51.4	39.5
3 P. M.	86.2	87.7	72.7	68.5	42.6	39.5	34.6	46.5	40.6	47.6	61.5	69.5	58.1
11 P. M.	71.4	71.1	56.4	52.4	38.4	35.5	30.3	40.6	36.4	42.7	54.9	62.7	49.4
Greatest daily range	52.0	62.0	52.0	50.0	28.0	25.0	27.0	31.0	33.0	35.0	37.0	37.0	62.0
Greatest monthly range	56.0	67.0	63.0	67.0	44.0	42.0	55.0	48.0	49.0	42.0	62.0	54.0	67.0
Dewpoint	50.1	47.2	39.9	29.5	33.3	30.9	25.8	28.7	25.3	28.7	30.6	33.0	33.6
Humidity	51.0	48.4	24.1	41.5	82.4	83.7	83.7	64.5	66.7	62.0	45.7	38.2	57.7

TABLE No. 4.

This Table shows the Prevailing Wind, Direction, and Average Hourly Velocity (in miles and tenths) at 7 A. M., 3 P. M., and 11 P. M., for each Month in the Year 1885 and 1886.

	July	August	September	October	November	December	January	February	March	April	May	June	For Year
7 A. M.	N 3.4	N 3.5	W 3.2	NW 2.0	S 4.1	W 3.8	W 3.5	W 3.8	W 5.6	W 4.5	W 3.9	W 4.0	W 3.8
3 P. M.	S 6.7	S 5.0	S 6.7	S 4.4	S 5.9	S 5.0	S 5.9	S 6.4	S 8.4	S 8.4	S 6.9	S 7.0	S 6.4
11 P. M.	S 6.8	N 6.1	W 6.4	W 4.6	S 4.9	W 4.2	W 5.5	W 4.9	W 5.2	W 5.4	W 6.1	W 6.5	W 5.6

TABLE No. 5.

Showing the Number of Clear, Fair, and Cloudy Days, and the Number of Days on which Rain Fell during each Month in the Year.

	1885.						1886.					
	July	August	September	October	November	December	January	February	March	April	May	June
Number of clear days	24	26	23	13	1	9	7	13	10	12	12	19
Number of fair days	4	4	6	15	8	13	11	12	12	5	10	7
Number of cloudy days	3	1	1	3	21	9	13	3	9	13	9	4
Number of days rain fell	5	2	2	5	24	11	20	10	10	14	10	6

IV. REPORT ON THE DISEASES OF SURPRISE AND GOOSE LAKE VALLEYS.

Cholera infantum.—My six years experience in this section leads me to believe that this affection is comparatively infrequent. I have observed a few sporadic cases during the months of July, August, and September, affecting especially bottle-fed children during the period of dentition: most of the cases are of a mild type, only one death due to cerebral complications. Dr. Patterson writes: "Cholera infantum is perhaps of average frequency, but I think of less than ordinary gravity. I cannot recall a fatal case in my practice. Cholera morbus and diarrhœa might be answered in the same words, and dysentery is unknown to me in practice here."

Cholera morbus is rarely met with, at least medical advice is seldom sought. I have observed it only in July, August, and September, and have been able to trace it generally to a large consumption of green apples, or some similar indiscretion.

Diarrhœa and *Dysentery*, especially the former, prevail to a considerable extent during the Summer months. The records of the post hospital show, that during the past sixteen years, two hundred and fifty-seven cases, or 15.6 per cent of the total number of diseases treated, were reported under this head. During the Summer months, especially in a dry mountain climate, the days are often excessively hot, the thermometer rising to 98° Fah. and higher in the shade, while the nights are always cool, and frequently chilly. Improper and insufficient clothing and exposure of the surface of the body to the chilly night air, is alone sufficient to account for these catarrhal affections. The influence of the fruit season and greater alkalinity of the water due to a lower stage, furnish additional causes.

Smallpox has not yet visited this locality. Should the community be infected at any time, I predict a serious epidemic, as the neglect to have the children vaccinated is widespread and simply shameful in this enlightened age.

Measles.—I have known of only a few sporadic cases prior to last February; they were all of a mild type, and no case resulted fatally. In February, March, and April of 1886 the disease assumed the proportion of an epidemic, affecting nearly every family in the locality. The disease was carried here from Susanville and other infected localities southwest from here. I treated over one hundred cases among the white population, and many of the milder cases were treated by attentive mothers. There were no deaths and the disease disappeared completely in April. The poor Piute Indians fared very differently. The disease invaded their camp and attacked about ninety of their tribe, and at least seventeen men, women, and children perished from the disease. At the end of March I wrote: "If any evidence was needed to show the importance of general and individual hygiene on the influence of disease, it is illustrated by this fact, that while there was no death from measles among sixty-five whites attacked, in thirty cases occurring among the Indians, six—three adults and three children—or one in five, have thus far died. This condition is nowise due to imprudent treatment on the part of their medicine men, as they are not active, and most of the cases had received treatment at my hands." At the time I was inclined to attribute this frightful mortality to bad general and individual hygiene, exposure to inclement weather, and the irritating effects of their smoky habitations, but other factors may have determined the fatality. Dr. Patterson's experience is stated as follows: "In 1874 had some fifteen or twenty cases. In 1885 and 1886 there were probably two hundred and fifty cases from Lake City to lower end of the valley. The origin of the first epidemic, if it deserves the name, was clearly traceable to a family of immigrants, who brought the disease with them from the emigrant train on which they crossed the continent. Last epidemic appeared here by extension from the west, taking in everything as it traveled. Number of deaths, none in first, two in second (only one in my practice, however)."

Scarlatina.—In the Fall of 1880 I observed a few sporadic cases, whilst an epidemic was raging in the lower end of the valley, at or below Cedarville. The cases in this section were of a mild type, and yielded readily to treatment. In April, May, and July, 1885, the disease again appeared in a mild form. I treated twenty-four cases. There were no deaths, and only three of the cases presented serious complications. In April, 1886, a few cases occurred. The disease prevailed more extensively in and around Cedarville and Alturas. Two of my cases were brought here for treatment from Goose Lake Valley, infected from Alturas. Fortunately a strict quarantine prevented spreading of the disease. In the month of May two cases occurred, which were quite remarkable. Two young men, who had measles in March, returned after their convalescence to Warner Valley, Oregon, and remained at work for nearly a month, when they were brought to town with well developed scarlet fever. No other cases existed at the time in Warner, and there was no evidence of direct or indirect transmission.

Dr. Patterson writes:

> Two epidemics of scarlet fever, one in 1880–1881, in which there were some twenty to twenty-five cases, with six deaths, five occurring in the practice of Dr. L. H. Kent and one in mine. Dr. Kent was unfortunate enough to have nearly all the cases occurring in families where the sanitary conditions were peculiarly unfavorable, and these seemed largely to determnie the mortality. Origin unknown.
>
> *Second epidemic* was that just passed in 1885–1886, in all probably forty cases (thirty-one of positive diagnosis, the others not typical cases, but believed to be due to the specific poison of scarlet fever). *Number of deaths* in my practice, two. There was a death in a case I never saw, but which I had reason to think was due to scarlet fever. Origin, brought from Alturas by the Boydston family.
>
> In this epidemic, as in the other, the mortality was confined to the cases in which the sanitary conditions were bad. Both cases of mine occurred in French families, where the parents were poor and ignorant. Then, too, the boys had, just after great indiscretions in diet at the New Year holiday season, exposed themselves, while much heated by labor, to extreme cold by sitting down to rest in the snow, and then breaking through ice into the water below. As might be expected, the disease was in each case characterized by very malignant sore throat and high temperature. One boy died before the eruption appeared—the other shortly after.

Diphtheria.—In the medical history of the post for April, 1878, I find the following remarks: "There were many cases of diphtheria on the west side of the mountains (Pitt River Valley and Alturas), and numerous deaths therefrom during February and March. The disease did not appear in this valley until April first, six miles beyond Cedarville. It became more common in and around Cedarville, twenty-five miles from here. By the end of April the disease died out without affecting this locality, notwithstanding daily communication."

During my service here, I have observed the disease only twice, once in the Autumn of 1883, and again last May, confined in both instances to a single family. In September, 1883, it occurred in the household of a well to do farmer, who had erected a few years before a new dwelling, on a gravelly spot formerly used as a corral, little suspecting that the excrementitious matter had for years permeated and polluted the soil, and thus prepared a hotbed for disease germs. In the Fall of 1879 two cases of typhoid fever occurred in this family, affecting the father and his brother. There was only one child then in the family. In September of 1883 three of the children were affected with diphtheria, and subsequently the entire family. One of the children died from laryngeal complication. Another patient also afforded a striking illustration of the constitutional character of the disease. He was suffering at the time from a lacerated wound of the right hand, and the wound, simultaneously with the fauces, was covered with a diphtheritic membrane. The inhabitants of this house are well to do, intelligent, and cleanly, and there was no room to assume immediate or mediate contagion, unless the disease prevailed among the fowl. This family always had a larger amount of sickness than others, without apparent cause. The well was close to the house, and at least one hundred and fifty feet from the privy. Upon inquiry as to the nature of the site, etc., I was informed of its original use as a corral, cow shed, and hog pen. In view of all the circumstances, the occurrence of typhoid fever and diphtheria in this family can reasonably be connected with a local cause, viz., the water supply. There is nothing improbable in the assumption, that the animal refuse matter permeated the gravelly soil for a considerable depth, and with the recession of the subsoil water, the warm air of July and August entered the deeper layers of the soil and stimulated into activity, if not existence, disease germs which finally percolated into the well, in consequence of artificial irrigation. I am aware that it is the opinion of excellent authorities that a disease like diphtheria is incapable of originating *de novo* from defective drainage, soil pollution, atmospheric, or telluric influences, but that it is propagated by a *particulate* germ. To all such arguments I have but one answer, and that is, disease germs must have had an origin some time and somewhere. The occurrence of two so called filth diseases in a family without evidence of direct transmission of the disease, would indicate, at least, that the same soil and condition are capable of developing different disease germs. Of course neither the microscope nor chemical analysis can be invoked to demonstrate to the masses the presence of these germs, very much less of a specific germ, but that such subtle poisons do exist and are being evolved by unsanitary surroundings, the facts plainly indicate, and the amount of money expended by this family for professional services, together with the amount lost by reason of sickness, would have been sufficient to erect a new dwelling in a location not contaminated in the manner indicated.

Dr. Patterson's account of the epidemic of 1878 is very complete and pregnant with valuable facts. He writes:

Have seen quite a number of sporadic cases of diphtheritic sore throat, but only one epidemic of the typical disease, which was in 1878.

Origin: To me the evidence is almost conclusive that in this case the poison emanated from the large body of swamp land on the South Fork of Pitt River lying to the south and southeast of Alturas. In this county the wind but rarely blows in any other direction than from the south and west. Having premised these facts, let me enumerate from memory (my records of the epidemic having been destroyed by fire) some of the other facts which to me appear to support this theory:

First—Not a single case appeared to the windward of the swamp.

Second—Almost every child, and many of the adults living in Pitt River Valley to the leeward of the swamp, were stricken with the disease in February, March, or April of that year.

Third—The virulence of the disease was in direct ratio to the proximity to the swamp and the exposure to the emanations therefrom, modified, of course, by individual characteristics of the patient, and by his other surroundings.

To the northeast of the swamp, which is quite extensive, are three cañons or gaps in the Warner Range of mountains, separating Pitt River Valley from the lower end of Surprise Valley, by which the southwest winds passing over the surface of the swamp would reach the latter valley. (For verification see meteorological table.—G. M. K.) At the mouths of these cañons, and *there only*, in Surprise Valley, mild cases of diphtheria appeared toward the close of the epidemic, which was raging on the other side of the mountain range. The disease in Surprise Valley was *confined exclusively* to the families near the mouths of these cañons. In the town of Cedarville the only families affected were the two that lived directly at the mouth of the cañon, and at the mouth of each of the other cañons the one family nearest to it was the only one that suffered. (It may be well to add that none of these cañons are passable for ordinary travel except the Cedarville Pass.—G. M. K.) In all, there were thirteen cases in Surprise Valley, with no fatalities. On the Pitt River side there were, I think, twenty-one deaths among those in the immediate vicinity of the swamp, and none among the many cases at a distance of over one mile from it.

Fourth—The season was what we here style an "open winter," with considerable rain in February and March. The epidemic subsided shortly after the cessation of the rains, to reappear as shown in the following subdivision. (See meteorological tables.—G. M. K.)

Fifth—In confirmation of the theory that the disease may and does originate in decomposing vegetable matter, I give this incident of the epidemic: Mr. William Combs, proprietor of the "Combs Hotel" at Alturas, sought my advice as to how he might best protect his children from attack, it being almost impossible for him to remove them from home at that time. Acting on my suggestion, he abandoned the family rooms on the ground floor, and occupied instead the parlor and adjoining room on the second floor. His family escaped attack until June, when a great freshet occurred, causing Pitt River to overflow its banks and inundate the town site, filling all the cellars, wells, and privy vaults. His family had meantime returned to the family quarters directly over a cellar, now filled with water and decaying vegetables, which latter had been stored there while fresh for hotel use, but were now carelessly allowed to remain. Both of his children died of diphtheria, and all the adult members of his family were attacked by it, while none of the persons inhabiting other portions of the house were affected. The disease at that time was confined to those who lived immediately over the cellar mentioned, notwithstanding the very unfavorable sanitary conditions which then prevailed throughout the town.

From my sad experience in that epidemic, I cannot but believe that one cause of diphtheria is an emanation from decomposing vegetable matter. That there are other sources from which the diphtheritic poison originates, I do not doubt. My experience of the disease may be said to be confined to this epidemic.

Croup, Membranous.—I have seen but three cases of membranous croup in this country, two of these in connection with diphtheria in the family referred to. I do not pretend to be able to differentiate between diphtheritic and membranous croup, and believe in the unity of these affections. Dr. Patterson writes: "Infrequent in my practice, have had, I believe, two fatalities from it."

Erysipelas.—I have noticed quite a number of mild cases of idiopathic erysipelas in this valley, and have been led to the belief that the mountain climate may be a factor in its production. How far its comparative frequency depends upon a sudden arrest of the cutaneous functions, and the passage into the blood of the excretory products of the skin and consequent autochthonous septicæmia, I am unable to say. I have not observed traumatic erysipelas in my hospital practice, and quite rarely among the settlers; the antiseptic dressings employed may exert a salutary influence.

Dr. Patterson observes: "Erysipelas, of the cutaneous variety, rather frequent, but probably not sufficiently so to deserve mention as being a peculiarity of this climate."

Malarial affections.—I find, in looking over my records, that I have reported a number of cases of intermittent and remittent fever—not a very large number, to be sure, but sufficient to attract attention. The number of cases treated among the troops, during a period of sixteen years, was one hundred and thirty-five, or 8.2 per cent of the total number of sick. This, in view of the marshy nature of some of the localities, would indicate that the cool nights of Summer do not favor the development of the bacillus malaria in sufficient numbers to prove a formidable foe. Indeed, my observations have impressed me with the belief that persons afflicted with intermittent fever elsewhere, recover in this climate. Quite a number of soldiers and civilians, although manifesting symptoms of the disease for a few months after their arrival, recovered completely. One case in particular was full of interest to me. The patient came from another locality, and in a few months was entirely free from ague; during the duck hunting season in the Autumn, he visited the tule swamps and returned with a chill; he repeated the visit two or three times, and each time had "one of his old fashioned chills;" finally, at my suggestion, which would have been offered before, only to determine the cause and effect with greater certainty, he avoided the marshes, and has not been affected with this fever since. I was informed by one of the pioneers of this valley that when the company of the Second California Volunteer Cavalry arrived here in July, 1865, a great many of the men were suffering from "chills and fever" contracted in the Sacramento Valley, where the company was mustered in, and that "after a few months they looked like a different set of men."

The few indigenous cases of malarial fever, which I have observed here, occurred in persons living in the low lands; they were by no means typical cases of intermittent or remittent fever, but, nevertheless, due to malarial poisoning. The majority of the cases treated by me were imported. In view of all the facts, as I review them, I consider malarial fevers extremely rare in this region, and the tendency in imported cases is to ultimate recovery.

Dr. Patterson writes: "Malaria, in the restricted sense, is but little felt here."

Mountain fever (*typho-malarial fever*).—In looking over my note books, I find that I have diagnosed a number of my fever cases, as "typho-malarial," and these are the cases commonly spoken of in this section as "mountain fever." I confess, that I experienced for some time considerable hesitation to regard this fever as anything more or less than a manifestation of the typhoid fever poison, but a study of the earlier symptoms especially, suggested a malarial element, which seems to modify the *materies morbi* of typhoid. Whatever the true nature of this mountain fever may be, the clinical picture essentially differs in many symptoms from "enteric" and remittent fever.

The disease is rarely ushered in by a chill, more often by chilly sensations, repeated two or three days in succession; there is always severe headache, occipital and frontal, and a severe aching in almost every part of the body; insomnia, or disturbed sleep, a peculiar furred tongue, sometimes yellowish and again bluish white, with clean red border and tip; not infrequently indications of a slight nasal or pharyngeal catarrh. The fever ranges between 101° and 104°, and in the first stage of the disease especially, shows marked exacerbations and remissions, suggestive of quotidian and remittent fever, and doubtless many of the milder cases are thus reported.

The pulse is usually full and frequent, between ninety and one hundred and ten. Epistaxis and abdominal symptoms in the early stage of the disease, are extremely rare; no eruption on the body, and in the majority of cases, constipation. Herpes febrilis are quite common. When the fever is well established, it continues for four and five weeks, with sudden and marked deviations in the temperature; there is also more sweating in the first stage than is observed in typhoid, and in my earliest experience actually interpreted the chilly sensations, fever and sweat, as symptoms of intermittent. In the graver forms, or pretracted cases, abdominal and adynamic symptoms are well marked, but I have never noticed very profound cerebral symptoms.

I am not prepared to speak from personal experience of the anatomical lesions, as I have had no fatal cases. Dr. Hoff's clinical histories, published in the *American Journal of Medical Science*, for January, 1880, accord so closely with my observations, that I am fully prepared to accept his conclusions:

> *First*—The fever of the Rocky Mountain region is a hybrid disease, the prominent features of which are typhoid—the modifying, intermittent; is in fact the typho-malarial fever of Woodward.
>
> *Second*—It appears during or after exposure incident to field service, generally, though not necessarily in late Summer and early Autumn, and seems to bear no relation to typhoid infection, as now usually accepted by the profession.
>
> *Third*—At its inception, this disease manifests itself as an intermittent of quotidian, tertian, or other form; this stage is followed (in about two weeks) by the typhoid stage, lasting in the neighborhood of four weeks, in which typical typhoid symptoms may be observed, modified to a greater or less degree by intermittent indications.
>
> *Fourth*—The pathological anatomy of the disease, is that of typhoid fever.
>
> *Fifth*—The treatment should be antiperiodic and antipyretic.

In regard to the origin of the fever, I have a few remarks to offer. In my observations I have been impressed with the fact, that many of the patients describe their feeling in the early stage, as having "caught cold," and there is usually some slight nasal, pharyngeal, or bronchial catarrh, but the constitutional symptoms, not unlike those of "catarrhal fever," are entirely out of proportion to the local affection. Whenever the patients report promptly for treatment, a mild cathartic, a Dover's powder, and five grain doses of quinine three or four times a day will mitigate the symptoms, and, in the majority of cases, arrest the disease; but in persons in the field or on the march, exposed to a hot sun in the day, and the chilly nights of a mountainous region, with no rest or special care, or when medical treatment cannot be at once had, the disease progresses, and after the expiration of two weeks the typhoid stage is reached, and quinine appears to have none but an antipyretic effect. *I have observed the disease in my field service to affect men who were absent for months from permanent settlements, in the uninhabited mountain regions of northern Idaho and southeastern Nevada, where the presence of the specific germs of enteric fever could hardly be suspected to exist, and the question naturally arises, whence did the germ of typhoid fever originate in these cases?* Two sources have suggested themselves to my mind; one is, that many of our so called pure mountain streams are polluted by beaver dams and large game, not to mention horned cattle and other live stock in some localities traversed. Dr. Charles Smart, of the United States Army (vide *Am. Journal of Medical Science* for June, 1878), has analyzed the water of numerous mountain streams, and demonstrated the presence of a dangerous amount of organic matter, but this very competent observer appears satisfied that it is of vegetable origin, for he remarks: "That the organic matter was vegetable in character, was inferred from the absence of the sodium chloride which is the invariable accompaniment of animal matter." Be this as it may, I have, within the past few years, drunk water from mountain streams which had a decided "cowy flavor," and as I have seen scores of these animals wading into the streams, my taste has probably not deceived me.

The second source is the possibility of the *materies morbi* being generated within the body, the result of certain changes of the blood, consequent upon the sudden suppression of the function of the skin. We know that this is an efficient cause for the production of numerous diseases, and that the poisonous effect on the blood acts as an irritant sometimes in one and sometimes in another part of the body, usually at the *locus minoris resistentiæ*. When this and the perforating ulcers of the duodenum, which complicate extensive burns, and which according to Curling result from the irritation due to the vicarious action of Brunner's glands in attempting to replace the deficient action of the skin—according to others, directly traceable to the formation of capillary embolism, is remembered, there is nothing unreasonable in the assumption that, in persons otherwise predisposed and subjected for weeks and months to a monotonous and faulty diet, frequent and excessive changes in temperature, and a water supply charged with organic matter, regardless of its origin, a hybrid disease should be developed combining the elements of a *septic* and *malarial* poison, and that the former may be generated within the body.

This may be at variance with the germ theory, although I do not think so, as the "germs" may be the products of the chemical changes of the blood. Many matters remain as yet unexplained. Thus, in surgical pathology, it is held that a septic condition of the wound is due to certain micro-organisms from without, and to exclude and destroy these germs is the object of the antiseptic art; yet we not infrequently see in *subcutaneous injuries* an extravasation of blood undergoing septic decomposition, especially in unhealthy subjects, and the question arises, how did the germs gain access here? The eight cases, or .5 per cent of the sick which occurred among the troops at this post during the past four years, were in recruits from Jefferson Barracks, Missouri, which appears to have been an infecting center of numerous military posts. The men generally arrived here in the second stage. My patients among the civilians were almost exclusively stockmen, who lead essentially an outdoor life, and frequently neglect the simplest rules of health, cleanliness of the body, and clothing.

Of course it is an easy matter, led by speculative considerations, to offer explanations as to the nature of "mountain fever," which fortunately is neither a frequent nor a fatal disease in this section; and whatever the origin of the typhoid element may be, the malarial element is most probably introduced into the system by the water, as my observations alluded to under malarial affections positively argue against the existence of malaria (aeriform) in this region, with the few exceptions pointed out.

It will be observed that the foregoing remarks apply particularly to a class of patients who inhabit, so to speak, a virgin soil, precluding the belief that local causes, such as soil pollution, are present to generate the typhoid element. In settled communities there is no necessity to look for extraordinary causes, such as I have suggested, as filth diseases go hand in hand with increased population.

These causes are fully set forth in the following remarks by Dr. Patterson, who, it will be noticed, has not attempted to separate mountain fever from his cases of enteric fever:

> I regard mountain fever as a modification of typhoid, which has been, I think, the cause of more deaths in my practice than any other disease. I cannot approximate with any

precision the number of cases I have treated in this valley. It is certainly in the hundreds, including all the cases—grave and mild, typical and hybrid.

The mortality, I would judge, was about ten per cent. Hemorrhage from the mucous membranes occurred in probably twenty-five per cent of the cases, and in these the mortality was, of course, heavy, perhaps thirty per cent of them dying. These estimates are, of course, too indefinite to be of much value, yet I think they are pretty nearly correct.

The intimate relation observed between low water and typhoid in the epidemic form would naturally suggest the relation of cause and effect.

Low water operates in at least two ways:

First—By the concentration of the impurities carelessly allowed to accumulate in wells, and the consequent contamination of the drinking water. This I think the chief cause; the contamination being aggravated by the drainage from strata of soil in the well walls, now exposed to the action of the air, from which they are usually protected by the water. In many cases where wells go entirely dry, or become so foul as to be perceptibly and totally unfit for use, the people resort to the water ditches, which, flowing often in but trickling streams, for long distances through many impurities—corrals, pastures, public highways, cultivated and manured fields—are inevitably impregnated with these impurities.

Second—Exposure of the lake beds, with all their impurities, would, were it not for their location to the leeward of the settlements, be another source of the disease, I think, through the agency of malaria. (I use the word in its etymological sense, not in the more restricted one meaning the agency, whatever it is, that produces periodic fevers.) In this connection, I have always observed that irrigation to the westward of the home was, in my opinion, a frequent cause of typhoid. The trend of the land then favored seepage into the wells, and the prevalent winds carried the malarious exhalations directly to the dwelling places. It is one of the things I always look out for when called in these cases.

Typhoid Fever.—The records of the hospital for the past sixteen years show that in a total number of one thousand six hundred and forty-eight sick treated, not a single case of "enteric fever" occurred. This indicates the value of sanitation, and is doubtless due to the fact that the garrison is supplied with water from a mountain stream, conveyed in pipes to the fort, to the absence of wells, and the efficient care exercised in preventing soil pollution. The record also indicates that the disease is not *endemic* in this valley, and that when it does occur, local causes must be looked for. I have treated about forty cases among the settlers of this and Goose Lake Valley during the past six years, and with very few exceptions its prevalence coincided with the low stage of the water in the lakes, and consequent recession of the subsoil water. Professor Pettenkoffer's theory, that with the recession of the water the air penetrates deeper layers of soil and there stimulates into activity and multiplication disease germs, which were dormant so long as they were submerged in water, is perfectly applicable to the majority of cases observed by me.

I have described the gravelly nature of the soil in the two valleys, and in one of my monthly reports directed attention to the dangerous propinquity of the privies to the water supply, and firmly believe that in a large number of my cases, the excrementitious matter gradually polluted the soil and finally contaminated the water supply. A properly constructed and located privy and stable is a rarity on the frontiers. I have known large families to live on a farm for six years and over without a privy in any shape, and it is not surprising that the children should have selected, in the meantime, the most convenient spots for the deposit of human filth. The stables are not infrequently located on higher ground than the dwelling, with a natural drainage towards the house. The only wonder is that some of these families exist at all. Perhaps the system becomes in a measure habituated to these noxious influences, but when the cup is full to overflowing, they suffer the penalty for the violation of natural laws. Even the Piute Indians appear to have in many respects better, sanitary ideas than their white brethren. While they are filthy, they change their camp at least two or three times a year, and in doing so, burn their habitations, with all the filth and rubbish. Moreover, for the benefit of their health, they take a number of "sweat baths" during the year.

In my remarks regarding the excessive mortality which attended the cases of typhoid fever in Goose Lake Valley last Fall, I alluded to the well meant but pernicious habit of a dozen or more sympathizing neighbors visiting the patients at one time and crowding the sick chamber to its utmost capacity, and I repeat the statement here, since these reports are for the benefit of the people, that many of these poor patients died victims of mistaken kindness. Contrast, if you please, the fact that the garrison has had no typhoid fever during a period of sixteen years, and that within a stone's throw from the reservation typical cases of enteric fever have occurred: contrast then the police and sanitary condition of the two localities, and talk about the absurdity of sanitary measures, and that diseases, being a visitation of God, cannot be prevented.

Surely we have in this instance an array of facts sufficiently strong to convince the most obtuse or superstitious minds that sanitary science is based on correct principles, and that "an ounce of prevention is worth a pound of cure."

Perhaps I have given the impression that typhoid fever prevails extensively in these two valleys. I have treated twenty cases within the last two years, and should have added that this is the largest number treated by me during any similar period, and the disease cannot therefore be justly regarded as of frequent occurrence.

Cerebro-Spinal Meningitis.—I have never seen a case in this section.

Consumption.—With two exceptions, I have never known a patient to contract the disease in this climate; and these patients suffered from chronic catarrhal pneumonia. In one case, the immediate cause appears to have been a contusion or compression of the pulmonary tissue, the result of a horse rolling over his chest; in the other case, organic disease of the heart coexisted. I have observed a few patients in the incipient stage of consumption to be entirely relieved after a year's residence in this climate. A soldier who arrived here in the third stage, died shortly thereafter. In another soldier, who came to this post in 1883, the tubercular deposit underwent a rapid process of softening, and was expectorated. The disease, notwithstanding two distinct cavities in the lungs, appears to be stayed, for a time at least. Five cases, or 0.3 per cent of the sick, are reported among the troops during a period of sixteen years. Dr. Patterson writes:

> Having practiced here for nine years before meeting with a case of consumption originating here, I came to believe and assert that residence in Modoc County was equivalent to exemption from this disease. The experience of later years leads to a slight modification of that belief. I have known of but four cases in all. The first, that of Mr. Parker, of Parker Creek, I believe to have been one of pulmonary consumption, but I have only a hearsay knowledge of it. He was not a patient of mine. The second was Mrs. C., of this place, in whom the tubercular diathesis was very well marked. The third was your own patient, W. P., and the fourth a half-breed Spanish boy from French's Ranch, who fell a victim to this disease, which is notoriously fatal to Spanish and other half-breeds.
>
> I have had an experience of some half-dozen *imported* cases, and it appears to me that the very climatic influences which prevent its origin here, accelerate the progress of those already commenced; hence I think that none who have passed the pretuberculous stage should be advised to come here in hope of benefit.

Rheumatism.—The official records indicate that during a period of sixteen years one hundred and sixty-eight cases of rheumatism, or ten and two tenths per cent of the sick, were treated in the post hospital. During my entire service here I have observed probably a half dozen cases of acute articular rheumatism among the settlers, the majority being cases of muscular rheumatism or myalgia, resulting, no doubt, from sudden changes of temperature and suppression of the cutaneous function.

Dr. Patterson writes: "Articular rheumatism, while not very infrequent, seems to bear no comparison at all in point of frequency with muscular rheumatism."

Neuralgia.—One hundred and four cases, or sixty-three per cent of the sick treated at the post hospital during sixteen years, were reported under this head. Neuralgia prevails more or less among the settlers, as a result of the causes just mentioned.

Dr. Patterson writes: "Neuralgia and nephritic ailments are very prevalent."

Catarrhal Affections.—Two hundred and forty-nine cases, or 15.1 per cent of the total number of sick treated at the post hospital during the last sixteen years, were reported under the head of catarrh and bronchitis; and reference to Table No. 6 will show that *tonsillitis* and *conjunctiritis* also furnish a large number of cases. Attention has been directed to the prevalence of *diarrhœa* and *dysentery*, and their relation to climatic conditions. It may be fairly assumed that the prevalent diseases in this community are catarrhal affections of the air passages, and of the alimentary canal, rheumatic and neuralgic affections. I have already expressed the opinion that I perceive in the extreme variation of temperature between midday and midnight, and suppression of the cutaneous function and consequent retention of effete material, a very effective cause for the production of disease.

Tables Nos. 1 and 3 indicate that a very prominent feature of this climate is the dryness of the atmosphere. In my experience catarrhal affections of the air passages usually go hand in hand with the greatest relative humidity. Whether the mucous membranes, habituated for the greater part of the year to a dry atmosphere, are directly irritated by the change, or whether wet feet or the process of "catching cold" already alluded to, plays the most important role, is difficult to say. But catarrhal affections of the mouth, nose, eyes, air, and alimentary passages may and do prevail during the dry season, and I have been forced to attribute their occurrence to sudden diurnal variations in temperature, the *materies morbi* produced thereby selecting the weakest spot for its elimination. Finally, the irritation of the alkaline dust may furnish an additional cause for their production.

Dr. Patterson writes: "*Bronchitis* is more frequent than pneumonia and pleurisy together. Tonsillitis is a very common affection, particularly in women. Influenza and catarrhal affections are quite frequent and often epidemic."

Pneumonia.—While catarrhal affections of the respiratory passages are quite common, the inflammation rarely extends to the pulmonary tissue. The number of cases of pneumonia treated among the troops during sixteen years was nine or 0.6 per cent of the total number of sick. I have treated probably forty cases within six years among the settlers with no fatal results. Most of the cases occurred in the Winter months, or the season of maximum humidity. In February, 1880, the disease prevailed extensively among the citizens of Surprise and Goose Lake Valleys. The rain fall for January and February was 4.58 inches. Prevailing winds S. and S.W. But the hygrometric condition of the atmosphere alone, is in my opinion, not a sufficient cause for its occurrence. Our soldiers while on guard duty are exposed to the inclemency of the weather, both day and night, and the comparative infrequency of the disease amongst them, would suggest, that other predisposing causes, such as overcrowding in small and badly ventilated rooms; in short, bad air, improper food and clothing, with other debilitating influences, constitute important factors in the causation of pneumonia. Just such conditions go hand in hand in families, where ten or more persons cook, eat, and sleep in a single room, about twelve by fourteen feet. When this condition is due to poverty, I can but pity the poor inmates, but when it is, as I have observed it, a question between building a good barn and dwelling, we can simply regret their ignorance of the laws of health, and the low value placed upon human life.

It is of course true, that in the army, the patients usually report very promptly for treatment, and this may account for the infrequency of grave cases, and the prevention of inflammatory conditions, but even this furnishes a striking illustration of the correctness of that old adage, that "a stitch in time saves nine." I have often been called to see patients, who had been liberally dosed with Ayers' Pills, or Kennedy's Medical Discovery, for a week and ten days, when they were actually suffering with pneumonia, typhoid fever, or some other serious disease, and I am also satisfied, that this very class of persons in case of sickness in a horse or cow, will spare neither pains nor money to obtain professional advice.

Pleurisy is also extremely rare in this climate; only seven cases or 0.4 per cent occurred among the troops in sixteen years. I have observed but few cases among the settlers.

Dr. Patterson's experience leads him to write: "*Pneumonia* rather infrequent and yet at times it seems almost epidemic; mortality small. Pleurisy less frequent than pneumonia."

Enteritis and *Idiopathic Peritonitis.*—I have never seen a case of either of these affections in this section, and Dr. Patterson writes: "They are almost unknown to me."

Diseases of the Liver.—I have treated a few cases of jaundice due to catarrhal inflammation of the bile-ducts and duodenum. Functional derangements of the liver are not uncommon, especially observed in dyspeptic patients, which will be presently referred to. I have observed a few cases of hepatitis, due perhaps to excesses in eating and sudden chilling of the body when heated. Two cases of hepatic abscess occurred in my practice among the citizens, one followed in the wake of typhoid fever, and the other without any known cause, and I can recall but three cases of chronic interstitial hepatitis (cirrhosis) in intemperate persons.

Dyspepsia.—In this connection I desire to direct attention to the frequency with which a large class of our settlers suffer from different forms of indigestion. Apart from sudden changes in the weather, which may give rise to gastric catarrh, the most prominent cause must be sought in the quality and preparation of food. A large number of the farmers and stockmen subsist on "hog meat," fresh, salted, and smoked, yeast powder bread, biscuits, beans, potatoes, and dried fruit, often prepared in the most indifferent way and consumed in a very injurious manner. The stockmen frequently eat but two meals a day, and often partaking of a heavy supper, go to bed shortly thereafter. As a result "biliousness" is a very general complaint. The physicians only encounter the more stubborn cases, in which "Warner's Liver Pills" and "Safe Kidney Cure" have been unsuccessfully resorted to. As may be expected, the mischief in these cases consists not only in atonic dyspepsia, but also of a chronic gastric catarrh, with more or less hepatic derangements. In consequence of these conditions, abnormal chemical changes are developed in the blood, and the different forms of lithiasis (gravel) with hyperacidity of the urine are frequently observed. A selection of proper food, and a better knowledge as how to prepare and eat it, would render the patent liver pills and kidney cures less popular and likewise reduce the doctor and medicine bills.

Nephritis, Acute and Chronic.—With the exception of three cases of acute desquamative nephritis in connection with scarlet fever I have not observed the Bright's diseases of the kidneys in this community. It is not improbable, however, that the chronic forms will manifest themselves as the settlers grow older, for I can scarcely conceive how these organs can fail to be affected when they are called upon to perform an extra amount of work, in dyspeptic cases especially. The comparative infrequency of nephritis compared with repeated changes of temperature and chilling of the body, I can only attribute to the fact that the *materies morbi* selects for its elimination the mucous membranes elsewhere.

Catarrhal Affections of the Bladder are not infrequent in patients afflicted with indigestion, and are usually induced by hyperacidity of the urine.

Urinary Calculi.—Notwithstanding that the different forms of lithiasis are common I have observed but one case of stone in connection with oxaluria and dyspepsia.

Heart Disease.—Functional derangements are not uncommon, especially in connection with flatulent dyspepsia, but I have seen very few organic lesions, and only one case of pericarditis. Dr. Patterson writes: "Functional disorders of the heart and liver are quite common, but I do not think there is any unusual prevalence of organic diseases of these organs."

Infantile Convulsions.—I have observed but three cases of this affection, confined to children of a single family, and occurring in connection with a high febrile condition in measles.

Hydrocephalus was noted in four instances.

Whooping-Cough was introduced into the community by a family of immigrants, in the Summer of 1883, affecting quite a large number of children; no deaths. It would appear that the disease was limited to the upper portion of the valley, certainly within ten miles from Cedarville. As Dr. Patterson says: "I am not sure that we have ever seen it here."

Puerperal Fever is extremely rare, if indeed it ever occurs. I have had no case in my own practice, unless I should mention a case of phlegmasia dolens, due to a mild form of uterine phlebitis, which occurred this Spring. Perhaps the germs are not sufficiently matured as yet. Dr. Patterson writes: "Puerperal fever is fortunately very rare. In all the hundreds of accouchments at which I have attended during the last fifteen years, there has not been one fatality from this or any other cause. I am not sufficiently egotistical to attribute this good fortune entirely to skill on my part. I regard it rather as evidence of a peculiar freedom from the dangers which commonly surround the patient in such cases. I do not think that in all I have met with more than ten or twelve cases of puerperal fever; these, however, let me add, have occurred chiefly within the last three years."

CONSOLIDATED SICK REPORT, FORT BIDWELL, CALIFORNIA—1870-1886.

Year	1870–71.		1871–72.		1872–73.		1873–74.		1874–75.		1875–76.		1876–77		1877–78.		1878–79.		1879–80.		1880–81.		1881–82.		1882–83.		1883–84.		1884–85.		1885–86.		Total.	
Mean strength	67.		79.		43.		65.		87.		114.		105.		67.		83.		103.		96.		67.		81.		95.		89.		86.			
DISEASES.	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Typho-malarial fever	----	----	----	----	----	----	1	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	3	----	3	----	1	----	----	----	8	1
Malarial fevers	14	----	9	----	9	----	6	----	4	----	22	----	16	----	6	----	7	----	2	----	3	----	2	----	8	----	13	----	6	----	8	----	135	----
Tonsillitis and other diseases of this group*	7	----	1	----	2	----	----	----	1	----	9	----	4	----	7	----	10	----	8	----	17	----	6	----	10	----	25	----	5	----	12	----	124	----
Rheumatism	4	----	18	----	3	----	16	----	11	----	31	----	13	----	----	----	7	----	9	----	6	----	3	----	4	----	12	----	15	----	16	----	168	----
Consumption	1	1	1	----	----	----	----	----	----	----	----	----	----	----	----	----	2	----	----	----	----	----	----	----	----	----	----	----	----	----	1	----	5	1
Syphilis	1	----	1	----	----	----	1	----	1	----	2	----	----	----	----	----	1	----	1	----	1	----	3	----	----	----	3	----	----	----	----	----	15	----
Gonorrhœa, inebriation, and other diseases of this group†	----	----	----	----	1	----	2	----	10	----	13	----	14	----	13	----	19	----	42	----	13	----	9	----	12	----	7	----	20	----	13	----	188	----
Catarrh and bronchitis	2	1	3	----	11	----	5	----	13	----	27	----	5	----	15	----	52	----	32	----	31	----	6	----	5	----	17	----	10	----	15	----	249	1
Pneumonia	----	----	----	----	----	----	----	----	2	----	1	----	----	----	----	----	3	----	2	----	1	----	----	----	----	----	----	----	----	----	----	----	9	----
Pleurisy	1	----	1	----	1	----	----	----	----	----	2	----	----	----	----	----	----	----	----	----	1	----	1	----	----	----	----	----	----	----	----	----	7	----
Diarrhœa and dysentery	4	----	20	2	19	----	30	----	13	----	49	----	26	----	5	----	17	----	9	----	20	----	12	----	3	----	8	----	14	----	8	----	257	2
Neuralgia	4	----	6	----	10	----	12	----	4	----	7	----	3	----	6	----	4	----	6	----	8	----	6	----	7	----	11	----	4	----	6	----	104	----
Headache, constipation, conjunctivitis, and other local diseases‡	12	1	12	----	14	----	28	----	35	----	48	----	26	----	13	----	35	----	47	----	31	----	14	----	21	----	19	----	11	----	13	----	379	1
Total diseases	50	3	72	2	70	----	101	1	94	----	211	----	107	----	65	----	157	----	158	----	132	----	62	----	73	----	118	----	86	----	92	----	1,648	6

* Tonsillitis is the most frequent disease of this group.

† Inebriation and gonorrhœa the most frequent diseases of this group.

‡ Headache, constipation, colic, conjunctivitis, and indigestion prevail in the order named, and constitute the majority of the diseases of this group.

V. CONCLUDING OBSERVATIONS.

The consolidated sick report of the garrison for sixteen years has been introduced to show the character and relative frequency of the diseases of this locality, believing that the sanitary surroundings of the troops are so excellent that fair conclusions can be drawn as to the relations of climatic influences and the prevalent diseases.

This table shows that an aggregate of thirteen hundred and seven men furnished sixteen hundred and forty-eight cases of sickness and six deaths. This, at first sight, may seem a large percentage; but it is to be remembered that in the army a great many men are entered on the sick report who in civil life would scarcely think of consulting a physician; but being incapacitated from duty by reason of a headache, colic, indigestion, or the effects of inebriation, or some other indiscretion, are excused for a day or two, and naturally help to swell the sick report. It is safe to assume that in at least fifteen per cent of the cases reported, the remote etiology was pay day or some act of indiscretion.

We find, then, that catarrhal affections of the alimentary passages lead the list; next in frequency are catarrhal affections of the air passages; then follows rheumatism, malarial fevers, tonsillitis, and neuralgia, in the order named. Due allowance should be made for imported cases in estimating the relative frequency of malarial fevers. In my experience, most of the cases were affected prior to their arrival. The absence of typhoid fever and other zymotic diseases among the troops is especially noteworthy.

A study of the meteorological tables renders it highly probable that the prevalence of the catarrhal, rheumatic, and neuralgic affections can be fairly traced to climatic influences; but these diseases are trivial when compared with those engendered by climatic conditions elsewhere. Indeed, it seems to me that the very factors which enter into the causation of these diseases here—especially the great daily range of temperature, dry atmosphere, and elevation—are destructive to other disease germs, and perhaps fatal to the development of the bacillus of tubercle. Much has been said in the article on diseases to show that many of the prevalent diseases are entirely preventible; thus the catarrhal, rheumatic, and neuralgic affections can be guarded against by the selection of proper underclothing, shoes, attention to the skin, etc.

I have expressed my opinion freely under the various subdivisions, and a lengthy review seems quite unnecessary. It has been my painful duty to point out that the occurrence of typhoid fever and other filth diseases among the inhabitants was closely connected with their unsanitary surroundings, and sufficient has been said to indicate with precision that the mortality was largely determined by these unfavorable conditions. It is doubtless true that many of our good people would gladly avail themselves of sanitary suggestions if the evils complained of could be remedied without expense; but as the subject is one largely of education, it is sincerely hoped that the principles of public and private hygiene are taught in every school in the State, and especially in country districts. In cities the sanitary regulations and police are probably the most effective educators.

From personal experience, I can vouch for the healthfulness of this climate. I came here six years ago, when thirty years of age, and weighed one hundred and thirty-five pounds, my height being five feet ten and a half inches. Having had a severe attack of pneumonia when eighteen years of age, I was justly apprehensive in regard to my lungs, which appeared to be my weak spot. To-day my weight is one hundred and seventy-four pounds, and I enjoy perfect health, notwithstanding the fact that I am at times overworked. This change I attribute largely to the salubrity of this beautiful mountain valley.

It is hoped that this report will contribute, in a small degree at least, towards the prevention of diseases in the State of California, with its wonderful climates and resources, and convince the population of sparsely settled and recent regions like ours that it rests largely with them whether a once healthful locality shall maintain its standard or be converted by acts of ignorance and carelessness into a hotbed of disease germs.

In conclusion, I desire to express my indebtedness to my friend Dr. Wm. H. Patterson, of Cedarville, for the prompt and efficient manner in which he responded to my request for information contained in the report on diseases; and also to Mr. T. J. Patterson, of the Signal Corps, U. S. Army, for the careful and efficient manner in which he carried out my wishes in the preparation of the meteorological tables. The records of the post hospital furnished all of the data, except for the year 1885–86, which were taken from the Signal Office. My acknowledgments are also due to A. G. Heyl, Hospital Steward U. S. Army, for assistance rendered in the statistical portion of the report.

SUPPLEMENTARY REPORT TO DR. KOBER

ON THE PREVAILING DISEASES ABOUT ALTURAS AND SOUTHERN END OF GOOSE LAKE VALLEY.

By J. M. Forrest, M.D., Correspondent of the Board.

Alturas, August 10, 1886.

My Dear Dr. Kober: I have been practicing here nearly eight years. In that time I have not seen nor heard of eight cases of pneumonia in an estimated population of two thousand two hundred. I have seen only one case of consumption (Blurton) which I suppose to have originated here. I have seen two imported cases—one from the East and one from San Francisco.

Acute peritonitis and dysentery I have not met. Muscular pains and aches, common; some rheumatism; some neuralgia. Functional derangement of liver very common. Articular rheumatism rare; have not seen more than two or three cases. Digestive derangements very common, frequently considered kidney trouble by patients on account of copious deposits of urates. Organic disease of kidney rare. I know of only one case of diabetes mellitus, and two or three of Bright's disease in old men. I remember only two cases of erysipelas. I have seen only two cases of true diphtheria; they got well. They caught the disease in and from rooms where persons had died of diphtheria.

Malaria does not cut a figure in my practice. I know nothing of typho-malarial. Typhoid fever has been sufficiently common. My experience with it has been, those cases treated from the beginning get well. Those are *doubtful* which run on two or three weeks before a doctor is called in. Many cases get well without any treatment. I think it quite possible that our continued fevers may be caused by a typical typhoid germ, and again by a germ resulting from putrid or decomposing animal matter. However, I have not time to enter into this. Measles has been a mild disease with us. Scarlatina has been hydra-headed. The first two cases I saw in the county were malignant and fatal; yet they were contracted from a member of a family all of whom had had the disease in a mild form, and got along (so reported) without medical treatment. The third case was an isolated one in the country; it got well. In our late epidemic, the fatal cases were *terrible* from the start, and were wholly beyond the control of medicine. Two cases, boys—little boys, playing together—presumably infected from the same source. One, malignant from the outset, died; the other, scarcely sick enough to remain in bed twenty-four hours. Influenza has been very common; quinsy, also. In connection with both have been some cases of follicular pharyngitis, simulating diphtheria. There have been three or four cases of croup—one was fatal—at a time when no disease was endemic or epidemic.

With careful hygiene, I believe typhoid and kindred fevers would be unknown in Modoc. We (the people) are largely to blame for the sickness in our midst. Privies and wells are too close neighbors. With a pure water supply and ordinary cleanliness, there would be no endemic disease in this portion of the county. I regret, my dear doctor, that this report is so meager.

COAST CLIMATE OF CALIFORNIA.

By John W. Robertson, M.D., Crescent City, Del Norte County, Correspondent of the Board.

The coast climate of California possesses many peculiarities which distinguish it from that found elsewhere in the United States, and which preëminently recommend it to the health-seeking invalid.

These peculiarities consist in uniformity of temperature, the distribution of rain, and the fact that there are only two seasons.

TEMPERATURE.

The temperature varies little Summer or Winter. There is not the innervating Summer heat which characterizes the interior valleys, nor, in Winter, is the rain so constant or disagreeable as to forbid outdoor life.

In no Winter month is the average temperature below 45°, nor, in Summer, does it rise above 60°.

As Chairman of the Committee on Medical Topography, I made a report to the State Medical Society, in which this uniformity of temperature was discussed, as follows:

> While the climate of California is mainly due to its situation, midway the temperate zone, the remarkable uniformity of temperature is due to local causes. The great law that, in the northern hemisphere, all western coasts are warmer than the eastern, is peculiarly well pronounced when the eastern is compared with the western coast of the United States. The mean isotherm of 50°, which passes through New York, latitude 41°, bears northward as it crosses the continent, touching the Pacific at Vancouver's Island, latitude 49°.
>
> Nature also draws isotherms in her distribution of trees and plants. While, on the eastern coast, 60° is the northern limit of coniferæ, they are found as high as 68° and 70° in regions adjoining the Pacific. It is thus evident that the climate of Northern California is much more temperate than that of the Eastern States which are situated in the same latitude. This does not hold true of Southern California. Here the conditions are reversed. San Diego, in the same latitude as Charleston, is 8° cooler. San Francisco and Washington, in the same latitude, and having the same mean annual temperature, have climates very dissimilar, owing to the great difference between the mean Summer and Winter temperatures of Washington, which amounts to 40°; and the small difference in San Francisco, being not over 8°. The mean annual temperature of Santa Barbara is 60°, that of San Francisco is 55°; nor does it fall below this on the northern coast. In Crescent City, latitude 42°, the temperature is as uniform as in San Francisco, frost and snow being of even rarer occurrence.
>
> Isothermal lines, which normally run east and west, are, as they near the Pacific, deflected north and south, and define three distinct climatic belts. These may be named: coast, valley, and mountain; and while they resemble each other in having only two seasons, they are dissimilar in other respects; each presenting peculiar attractions for different classes of invalids. These differences depend upon the topography of the country, and are of degree rather than kind; altitude, distance from the ocean, and situation with reference to mountain chains, giving to each region its characteristic climate. That of the coast extends only a few miles inland, but stretches six hundred miles north and south. It is characterized by a mild temperature, which varies little Summer or Winter, a fresh sea breeze during the warm part of the day, fog in Summer, and an abundant downpour of rain in Winter. Here perpetual Spring is found, the trees being principally fir, spruce, and redwood, and the grass always green, the vegetation presents, both Summer and Winter, a pleasing contrast to that prevailing in the valleys and mountains of the interior. It is proper to include in this a large part of the inhabitable region of Southern California. There the hills of the Coast Range, being low, offer little resistance to the cool ocean breeze, and the effect is felt for many miles inland. The heat incident to the valleys greatly moderates them, removes all rawness, and the result is a balminess exceedingly grateful to the invalid.

That there should be a region stretching over eight degrees of latitude north and south, the temperature of which is mild and practically constant, is phenomenal. For its explanation we must look to the Japan current, which flows down our coast. This current separates from the equatorial as it leaves the Indian Ocean, flows northwest along the coast of Asia, and, off Kamtschatka, divides. One branch is directed north into the Arctic Ocean through Behring Strait. The other flows westward until it reaches Alaska, where it is deflected south, closely embracing the coast lines of Washington Territory, Oregon, and California.

When the Japan current leaves the Indian Ocean its temperature is 90°. As it flows northward this temperature decreases. Off the coast of Japan it is but 70°, and, as it goes north, the temperature is further decreased, but not so rapidly. Off the coast of California it is from 55° to 60°, and it rises but little in its course southward.

The westerly winds of Summer and the southwesterly winds of Winter bear with them the uniformity of temperature of this large body of water, rendering the temperature of the coast warmer in Winter and cooler in Summer than it would otherwise be. It also equalizes the temperature along the whole coast, giving to Santa Barbara—latitude 34°—almost as cool a climate as has Crescent City, latitude 42°.

These westerly winds are in accordance with the well established law that there are "three distinct belts in each hemisphere, namely: the belt of easterly winds, within the tropics; the belt of westerly, within the temperate zone; and the belt of northwesterly, at the north."

The west winds of Summer are greatly intensified by the heat, incident to the great interior valleys lying east of the Coast Range. The heated air rising from the Shasta, Sacramento, and San Joaquin Valleys, and the sandy plains of Tulare and San Bernardino, leaves a vacuum which the sea breeze rushes in to fill. This breeze is unusually strong wherever there is a gap in the Coast Range leading into any of the great valleys. The topography of the western coast is such as to allow no conflicting element which would tend to materially modify this general law of temperature.

The Rocky Mountains, starting from the northern coast of Alaska, stand as a great barrier, warding off, to a great extent, the cold winds flowing southward. Were it not for these mountains, which break the force of this polar wind, and the still greater protection afforded by the Cascade and Sierra Nevada Ranges, California would, in all probability, be overwhelmed with some of those terrible blizzards which are of such frequent occurrence in the Western and Northwestern States and Territories.

DISTRIBUTION OF RAIN.

The distribution of rain is so anomalous as to be worthy of mention. The general law that the annual rainfall is greatest near the equator and diminishes about two inches for every degree of latitude north is, on this coast, reversed. The annual fall of rain at San Diego averages nine inches, increases to twenty-four at San Francisco, and rises to eighty inches at Crescent City, near the Oregon line, figures that the topography of the country only in part explains.

The temperature of Southern California is so mild and the Coast Range so leveled, that little influence is exerted on the vapor bearing southwest winds. Northward, the Coast Range rises, causing a greater precipitation of rain, which is intensified when the Coast Range intermingles with and is overtopped by the snow capped Siskiyous.

North of Cape Mendocino the annual rainfall suddenly rises from thirty-five to sixty inches, without any accompanying change of mountain formation adequate to the production of such a result.

Professor John LeConte, in discussing this increase of rainfall, says that it "is a striking but very puzzling fact. We are not yet prepared to offer any satisfactory explanation of it. So far as we know, there are no observations indicating any sharp and sudden depression in the temperature of the ocean waters just at Cape Mendocino."

One factor of this increase is the vast forests which act powerfully both as attractors and condensers of moisture. While the Coast Range, even south of San Francisco, is covered with timber, the forests do not compare in extent with those which clothe the higher ranges of the north. The sudden increase of the annual rainfall is coincident with the commencement of these forests.

The verdict of the most eminent authorities on this subject is by no means unanimous. A very small minority claim that the effect of forests is nil. The very great majority assert that they have an effect; some claiming that they only act by retaining moisture, others that they sensibly increase the rainfall. They base their opinion upon the changes produced by cultivation and tree planting, as well as by the disastrous effects of mountain denudation.

In a very able paper which appeared in the transactions of the State Medical Society for 1883, Dr. Chipman discusses the subject, and brings strong evidence to support the judgment of those who believe in an increase of rainfall. It is possible that tree planting has not, as yet, had any great influence, for the land so redeemed is of small extent, and the trees but of a few years' growth. The results following denudation should be the criterion.

Certainly a densely wooded country and a large rainfall go together. Of course, it may be claimed that the forests are a result, rather than a cause; but the result of the destruction of immense forests has been so pronounced as to render the converse probable.

Should it be a fact that these moisture-attracting forests aid powerfully in increasing the rainfall, we can, with certainty, predict a result that will soon occur in the distribution of rainfall on this coast.

Man, after a most reckless fashion and with all modern appliances, is rapidly destroying what nature during the last thousand years has so generously produced. Within twenty years the mountain sides will be bare, and where redwood measuring fifty and sixty feet in circumference stood thickly rooted, dead stumps will be the only proof of former grandeur.

Some contemplate this change with alarm. In all probability the results will be extremely gratifying. The immense forests no longer attracting, the rain-laden clouds will be more evenly distributed, the rainfall in the southern counties largely increased, and artificial forests may yet clothe their hillsides, materially modifying their heat and purifying the atmosphere, causing the now barren plains to bloom, and thus add new charms to a region already famous as a sanitarium.

The topography of Northern California will assure to that region a bountiful supply of rain, though it may no longer be deluged with the six feet of water which falls during its five Winter months.

This is not altogether theoretical. Already have vast tracts of forests been destroyed, and the result has been a most wholesome change in the climate. The annual rainfall has perceptibly diminished and the fogs which, formerly, during the Summer, enveloped this region, are growing lighter yearly.

So pronounced has this change been in Crescent City that the climate, formerly disagreeable by reason of fog in Summer and continuous rain in Winter, has so moderated in the last few years that fog is comparatively infrequent, and the rainfall has diminished, how much it is difficult to say, as observations conflict.

It is proper, in this place, to notice the difficulties which arise in the study of rainfall on this coast, and the many sources of error to be avoided. The United States Signal Service has established stations along the coast, where the temperature, velocity, and direction of the wind, and the rainfall, are recorded. As a rule, the men chosen to keep this record are those who have shown a desire, as well as a natural adaptability, for such work, and their reports are reliable.

On the other hand, the reports from certain military posts are to be looked on with suspicion. The observers usually selected are the Post Surgeons, and, too often (I speak from personal knowledge) the duty of recording observations is delegated to the Hospital Steward, who, from the recesses of his inner consciousness, draws up a report that reads well, but which has not the slightest foundation in fact.

Another most important source of error, and one difficult to correct, is that of accurately measuring the rainfall. For this purpose the Signal Service Bureau has recommended to each observer a receiving can, which is to be placed in the most open spot available. When the water falls perpendicularly this can will be an accurate register. As a rule, the coast rains are accompanied by winds of high velocity. This wind will vary the amount of rain caught in the receiver; for it is evident that more rain would fall in a receiver, the plane of which is perpendicular to the plane followed by the drops, than in one where these planes are at an angle less than ninety degrees, and the decrease would vary directly as this angle.

If the surface of the earth were absolutely level this might represent the actual rainfall, but, on every hand incline planes arise, such as sloping hillsides, and other elevated obstructions, forming inclined planes. These planes, making greater angles with the lines of incidence, receive a double portion, and the result is a raise of the average rainfall. This error can be overcome by taking the velocity of the wind in any given storm and calculating its disturbing effect.

Again, the wind, meeting with obstructions, throws the drops into vortexes and currents, materially interfering with their fall. Should the receiver happen to be in this current, the result recorded would be far too great. Although the Signal Service Bureau has recommended the adoption of a standard gauge, placed at a certain height above the ground, their suggestions have not, in all cases, been adopted.

For these reasons the reports of the Signal Service Office should be taken with many grains of salt. Even were the gauges absolutely accurate, only approximal deductions could be drawn from the reports sent in. The only general law that has so far been established is that the rainfall of the coast increases towards the north. The stations are too far apart.

Before we can give a true report of the rainfall of any given section, rain gauges should be placed on at least every square mile of the territory reported. A failure to avail itself of all sources of information obtainable, and an implicit reliance on figures reported, without taking into consideration modifying and extenuating circumstances, has, in certain instances, led to serious mistakes.

A most notable example of this is the one hundred and five inches given as the rainfall of Crescent City, and presumably, of the surrounding country.

This leads all other localities by four inches, and all other coast stations in California by sixty-four inches. Crescent City is situated on a bight of the ocean, in latitude 42°. The keeper of the signal station is a man of unusual scientific attainments, accurate and painstaking. He has done his work honestly and faithfully, and, beyond all question, one hundred and five inches did fall in his receiver. He has placed his gauge, five inches square, in an open space about two hundred yards from the ocean, near the margin of a slough. The topography of the country is such as to direct the wind currents, and consequently, the vapor-bearing clouds, along this line, and it is probable that more rain falls in this locality than in any other place in Crescent City. At the lighthouse, one half mile away—also on the coast—another rain gauge is kept. The observer is equally accurate, and his report is altogether as reliable as is the one adopted by the Signal Service. He has kept a daily record of the state of the weather and the direction of the wind since 1877, but the amount of rainfall has been registered only since April, 1883. His rain gauge is circular, two inches in diameter, and is situated on a promontory sixty feet above the ocean. The following table represents the number of rainy days for the last three years, together with the rainfall as registered, both at the Signal Service Station and the lighthouse. September has been selected as the initial month, for during this month our rainy season begins:

Months.	1883–1884.			1884–1885.			1885–1886.		
	No. of rainy days	Rainfall Signal Service Station	Rainfall Lighthouse Station	No. of rainy days	Rainfall Signal Service Station	Rainfall Lighthouse Station	No. of rainy days	Rainfall Signal Service Station	Rainfall Lighthouse Station
September	2	4.56	3.68	9	7.23	4.25	2	1.96	1.33
October	11	8.35	5.05	5	5.24	3.37	6	3.77	1.48
November	3	3.36	2.06	4	7.12	2.47	21	30.78	16.56
December	2	9.65	.84	16	27.01	15.25	16	22.26	14.25
January	10	11.45	7.84	17	11.32	7.96	14	18.28	7.96
February	15	7.89	4.23	13	9.30	6.61	8	9.14	4.50
March	15	9.61	7.69	3	.84	.74	14	9.00	4.98
April	13	10.39	6.39	4	1.32	1.02	15	8.59	5.56
May	5	2.01	1.23	6	1.53	1.17	6	1.50	1.64
June	4	2.08	1.50	2	.80	.24			
July	1	.15	.05						
August	1	.06	.03						
Total	82	69.56	40.59	79	71.71	43.08	102	105.28	57.69

That two stations, one half mile apart, should give a difference of fifty inches is, to say the least, remarkable. As I have before said, the accuracy and honesty of neither observer can be questioned. The explanation must be found in the form of the receiver, the difference of location, and the centralization of the vapor-bearing clouds.

The most glaring discrepancy is the amount of rain reported to have fallen during the month of December, 1883—9.65 inches having been registered at the Signal Service Station and only .84 at the lighthouse.

In a memorandum book I find the number of "cloudy and rainy" days for this same month to be six, but I cannot vouch for its absolute correctness. A careful study of the records reveals some interesting facts. The storms last from two days to a week. They are ordinarily preceded by a southeast wind. This wind may last from a few hours to two days, and it is possible to predict the length of the storm by observing the length of time this wind precedes it. When the wind veers to the west or northwest, clear weather follows in a few hours. During the Winter there is no fog, and very seldom is there mist. When it rains, the downpour is incessant. The greatest amount registered by the lighthouse gauge for any one day was 2.97 inches on the twenty-fourth of December, 1885. On the same day the Signal Service Station registered 4.16 inches. Such an amount is unusual, though frequently the register marks an inch or more for even one day's storm. To really comprehend how much an inch of rain is, it must be remembered that on every acre, during a storm that registers an inch, nearly twenty-seven thousand gallons of water fall; or, on a square mile, about twelve million four hundred and twenty thousand gallons. Did one hundred and seven inches fall, the result would be fearful to contemplate. No dependence is to be placed on the 81.59 inches of rain supposed to have been registered at Camp Lincoln, six miles from Crescent City, which has been so often quoted in tables of rainfall. That figure and the accompanying details were the result of pure imagination.

As to the comparative value of the figures in the above table with reference to the real amount of rainfall, little can be said. It is probable that the figures of the lighthouse come nearer representing the average rainfall than do those of the Signal Service. They certainly more nearly agree with the reports sent from our coast stations. It is probable that a like uncertainty exists as to the amount of rainfall in other localities, were it possible to sift all facts. For instance, there is a difference of ten inches between the rainfall of the lighthouse near Eureka and a gauge kept in that town.

Too implicit confidence is liable to result in fallacious inductions.

Wet and Dry Seasons.—From the middle of May till the middle of September, rain seldom falls. The Winter rains, as a rule, do not commence before October or November. It has been asserted by a high authority that south of Cape Mendocino, latitude 40° 20′, but little rain falls during the three Summer months, while north of this point the rains are more evenly distributed throughout the various seasons. Rains are as unusual during June, July, and August, on our upper coast as in San Francisco. The same record that gives Crescent City one hundred and seven inches of rain for the Winter months, makes the rainfall for the three Summer months of 1882, .81; 1883, .41; 1884, 2.39; 1885, .80 inches.

In Shasta Valley, due east, but separated from this coast by the Siskiyou Mountains, Summer rains are of frequent occurrence.

Dry Summers and Winter Rains.—Where, within the tropics, the northeastern and southeastern trade winds meet, is a region of calms and rains. This belt of calms and rains, as has been stated, moves northward and southward with the sun's declination. Where, within the temperate zone, the northern and northwesterly winds from the polar regions meet the westerly return trade winds, is a region of storms and rains. These belts also follow the sun's declination north and south. Applying these laws to this coast: At our midsummer, the vertical sun would be on the tropic of Cancer, and, in that vicinity, the northeasterly and southeasterly trade winds would meet, create ascending currents, consequently calms; this air, laden with moisture, would rise into cooler regions, when a portion of its moisture would be precipitated, making tropical rains; it would then flow north and south towards the poles. Confining our views to that portion which would flow toward the north pole, the larger part of it must descend to the earth within 30° of latitude, under the law, as stated by Professor Henry; as in going north it continually has to pass over a portion of the earth which is moving less rapidly than the portion it has left, it is deflected and becomes a southwest wind. The greater part of this upper current having descended to the earth within 30° and returned to join the trade wind, the remainder would flow toward the pole, portions descending in its course at all points where the rarefaction of the air near the earth's surface would permit. These descending currents cause the local variable winds of our temperate zone, but the aggregate of all of them is the prevailing southwest return trade wind. The descending currents cannot give rain, as they only fall to the earth when they become colder than the air near the earth's surface. In falling they are constantly arriving at places of warmer temperature than those they have left; therefore they change to a condition of taking up moisture, rather than of parting with it. Where the great body of the descending return trade wind reaches the earth between latitudes 28° and 35° must, therefore, on this coast, be comparatively a rainless region. Other lessening portions of the upper current would pass on until they met the prevailing northerly wind from the polar regions, when their temperature would be lowered and their moisture condensed and fall as rain. The conflict of this descending current with the polar wind would create storms and give rise to electrical phenomena. The prevailing northerly polar wind reaches to about latitude 60°, varied by the declination of the sun.

The cause of this dry season is supposed to be the return trade winds deprived of their moisture, which prevail during the Summer months.

On the other hand, beginning in September, the wind currents are from the south. These winds are saturated with moisture from the Gulf of California and other southern tropical seas. They lose but little moisture passing over the hot deserts and valleys of southern California, and it is only as they reach the cool coast, from Santa Barbara northward, that they deposit much rain. The further north they go the more are they affected by the coolness incident to a higher latitude.

For the same reasons it has been supposed that moisture-bearing west winds would deposit more rain in the northern than in the southern part of California. It is not probable that this increased rainfall is due altogether to a colder latitude. The temperature is not such as to be a powerful condenser. The mercury seldom falls below 50°, and, if it were this temperature that condensed the moisture of the west wind, this condensation should take place in the Summer as well as the Winter, the variation in temperature between these seasons being slight. During the months of October, November, and December, 1885, an unusually large amount of rain fell on the northern coast, but, during this time, the temperature did not fall below 60°, and no snow fell either on the Coast Range or in the Siskiyou Mountains.

Professor John Le Conte has suggested the possibility of a cold counter current going north which hugs the shore and which might act as a condenser. Another possible explanation is the influence of the immense forests already mentioned.

COAST CLIMATE.

The annual temperature of the coast ranges from 45° to 60°. Snow is a most rare visitor, though, at intervals of a few years, there is a slight fall. In the early Spring months frost occasionally occurs.

To one accustomed to the innervating heat of the great interior valleys, a sudden change to the coast is not pleasant.

The ocean breezes are possessed of a peculiar "freshness" that sends unpleasant chills through the newcomer, unless he be unusually vigorous.

A few weeks residence changes this rawness into an agreeable state of invigoration, and there is a sense of buoyancy and vitality experienced in no other climate.

The therapeutical effect of the climate is essentially tonic and suited only to certain classes of invalids.

Diphtheria, puerperal, typhoid, and malarial fevers are unknown. The exanthemata seldom occur, and, when they do, they appear in their mildest form. This does not hold true of those large towns on the coast whose intrinsic uncleanliness is often sufficient to partially overcome and destroy the purifying effect of the ocean breezes.

On the other hand, certain diseases are so frequently met with as to render it almost certain that they are fostered by our peculiar climate. These are rheumatism, neuralgia, bronchial affections, and diseases of the liver.

There is no reason to suppose that this climate would not favorably affect consumption, provided it is not accompanied with serious bronchial lesions. Possibly experience will prove what theory points out, viz.: that this is the climate *par excellence*, for it combines tonic qualities with a temperature so moderate as to permit of outdoor exercise at all times of the day. Patients should be warned against "overcoat colds." Underclothing, composed of flannel or chamois leather, will prevent much of the discomfort complained of by those who are thin blooded.

THERAPEUTICS OF THE COAST CLIMATE.

It is presumed that certain diseases known as endemic depend on location, and that they are the result of contamination of either soil, air, or water. This influence has been noted from the earliest date of recorded medical observations. Hippocrates thus begins his essay on "airs, waters, and places:" "When one wishes to properly investigate diseases, he should begin as follows: After first taking into consideration the seasons of the year, he should watch the effects they produce, for these effects vary with the changes of the seasons. Then the winds should be watched whether they be hot or cold, not only those that are common to all countries, but more especially such as are peculiar to one place. * * * Likewise, when one enters a city with which he is unacquainted, he should observe with care its situation with reference to the wind and sun. Its influence varies with its situation, north or south, to the rising or the setting sun."

The malignant "east wind," so often mentioned in sacred and profane histories as being loaded with miasms, plagues, and as an instrument for the accomplishment of divine justice, was nothing but the dry, hot, scorching simoon, the injurious effect of which was due solely to the fact that it absorbs moisture, not only from trees and plants, but from animals as well, rendering the mouth, throat, nostrils, and bronchial tubes, dry and parched, and, by its great power of absorption from the skin, drying up the fluids of the body. It is this wind which, in the early Summer months, prevails in the Sacramento and San Joaquin Valleys, blasting vegetation, and bringing latent diseases into activity. It is because of this rapid evaporation from the skin that the great heat (sometimes, and possibly erroneously, registered as 120° and over) is borne. This evaporation cools the body, and renders the heat bearable, but, for reasons just given, it is not the unmixed blessing so often claimed. Its therapeutical effect is worthy of an investigation more thorough than has yet been given it, and which can only be successfully prosecuted by a resident observer.

Beyond all question, certain districts which are characterized by altitude and dryness present a class of diseases very different to those where the ground is low, marshy, and composed of decayed vegetable products; or, again, sudden changes from hot to cold—from an atmosphere dry and absorbent, to one saturated with moisture, and more especially when these changes bring with them obscure aches and pains, and a sense of uncomfortable restlessness, which is popularly, and probably correctly, attributed to electrical influence—would produce a class of diseases radically different to those found in a climate the characteristics of which are an equable temperature, a moisture-bearing, and, as experience seems to prove, a "germicide" wind, fogs, and an infrequency of electrical manifestations. This latter contrast is presented on comparing the climate of the valley with that of the coast, separated by a range of hills parallel to and distant from the ocean five to twenty miles. There has been no systematic series of observations on the influence of coast climate over disease, and the first attempts in that direction will necessarily be crude. The foundation of facts so far collected is small, and while the inductions drawn from them may be faulty as to detail, yet I am fully persuaded that future observations will prove the general outline here given to be correct.

There is a direct influence exerted over those diseases which are supposed to be caused by external morbific agents; erysipelas and influenza being at times endemic, while other general diseases, such as typhoid, relapsing, scarlet, malarial, and puerperal fevers, variola, and diphtheria are either unknown or appear in a mild form. This statement holds good for the region directly along the coast, over which the winds have full play; yet there are some factors which, in certain localities, tend to vary it. The most important of these are filth, decaying vegetation, and impure water. When the population is dense, especially in made ground with faulty drainage, filth diseases are found.

The peculiar influence exerted by climate is well illustrated by a study of the diseases prevalent in Crescent City and the region surrounding. Crescent City is situate directly on the coast, many of the houses having been occupied as dwellings over thirty years. Sanitary precautions are absolutely ignored; consequently filth of all kinds is abundant. Few houses have drains extending further than the back door. A large colony of Chinese are, as usual, located in the center of the town, and the effluvia from their dens is sickening. They so drain their water and filth as to form cesspools in the streets. Water is found at from five to ten feet beneath the surface, and, being only a few yards from the ocean, is brackish. The inhabitants depend altogether on these wells for their water supply; and, being sunk in porous soil and surrounded by cesspools and deposits of filth, they must contain water saturated with organic impurities. The sense of smell will often detect these, and the rudest tests prove their abundant presence.

From these hygienic surroundings, the *a priori* deduction would necessarily be that every essential feature of a death-trap is present; in fact, it would appear that the most diabolical ingenuity had been exerted to assure large mortality reports; still, I venture to assert that a more healthy town cannot be found upon the face of the earth. Though the population is over one thousand, during the last five years but four children under five years of age have died, nor could their deaths be attributed to those diseases peculiar to children.

The adult mortality is equally light, most of the deaths being the result of diseases of the heart, liver, stomach, lungs, and apoplexy.

This immunity from the diseases enumerated cannot be attributed to accident. They are the products of filth, and follow, with unerring certainty, the footsteps of civilization. Where there are a few houses collected, where forests are destroyed, vegetation rots, and streams are stagnant, wherever drainage is neglected, these diseases appear. The coast belt owes its healthfulness, not to sanitary precautions, but to temperature and wind. Their modus operandi is not known.

In recent years much study has been given to the etiology of these diseases. Brilliant bacteriological discoveries have been made. Most confidently has it been asserted that the bacilli of malaria, cholera, typhoid fever, diphtheria, phthisis, etc., were discovered. In a recent publication Sternberg notes sixty-five different bacilli, forty-one of which are pathological. No one doubts the presence of these bacilli, and while all who look hopefully on the future of medicine, who would see it raised from an art to a science, eagerly await future investigations to confirm, it must be confessed, that cause and effect have not, as yet, been established. Taking for granted that the germ theory is correct, the explanation of the healthful effects exerted by the coast climate is simple: though certain germs may be present, they do not luxuriate in a climate whose temperature is moderate; and that certain of those which are present are destroyed by the wind. That our healthfulness is mainly due to the wind cannot be doubted. It may act mechanically by blowing and scattering the germs, or, what is more probable, it possesses an inherent germicide power; for certain acute diseases, such as influenza, whooping-cough, rheumatism, and erysipelas are of frequent occurrence. Why erysipelas (idiopathic) should be at times endemic and puerperal fever occur so infrequently, I cannot conjecture, unless it be that the germs of one flourish in a cool climate while the other demands heat for its proper development. The only case of puerperal fever that I have seen here occurred during a spell of unusually warm weather and very near the residence of a person who, a month before, suffered from an attack of idiopathic erysipelas. Though, because of the destruction of forests, there is much vegetable decomposition, malaria is seldom found. When brought from the interior it immediately assumes a remittent type and, without medicine, will often terminate in recovery. Measles and scarlatina have been epidemic, but they occur in a form so light as to be scarcely recognizable—seldom confining the patients to bed. On the other hand, in whooping-cough, the symptoms are usually intensified and a residence away from the coast is often made necessary for its cure. In Crescent City and the country surrounding there has never been an authentic case of variola, diphtheria, or typhoid fever. In the main this assertion holds good for the coast, except in those centers of population where the inherent impurities overcome the sanitary influence of the climate, or in regions away from the coast and sheltered from the winds. This wind, besides possessing moisture and coolness, is surcharged with ozone, and much of its influence is to be attributed to the oxidizing power of this agent.

Certain chronic diseases are attributable to the secondary effect of this climate. Californians (and by Californians San Franciscans are usually meant) live a notoriously fast life. Persons coming to San Francisco from the interior valleys or the East are, at first, chilled by the cool, fog-bearing wind; but this chilliness soon gives way to a feeling of exaltation and well-being, difficult for those who have not experienced it to understand. No intolerable noon-day heat compels a siesta. Their food is bolted and digestion retarded; their gait resembles a run more than a walk; early and late their minds unceasingly act, and when the nervous force is exhausted, too often alcohol is used to stimulate their flagging energy. At fifty they are old. Such a life is conducive to nervous derangements as well as diseases of the heart. From the fact that women, also, are unusually subject to nervous diseases, it is probable that the climate possesses an idiopathic influence in this direction. The diseases which the physician is most frequently called on to treat are indigestion and derangements of the liver. It is probable that certain acute disease being so entirely absent, these chronic cases assume undue importance; yet they are, to a certain extent, fostered by the climate. Meat, fat, butter, and other heat producers, are used in quantities much greater than would be in a warm climate; the blood is rich to stagnation, and the bilious temperament prevails. In acute diseases the lancet is often absolutely demanded, and though now out of fashion, will eventually be again recognized as a most important therapeutic resource. I will close this article with another quotation from Hippocrates. While his explanation of the frequent association of biliousness with a cool climate may be correct, when he penned the last sentence he evidently did not truly prophesy a prominent characteristic of the typical Californian: "Those cities which are exposed to cool winds during the Summer months and which are sheltered from the hot breezes of the south, possess the following characteristics: As a rule the waters are hard and cool; consequently the men are vigorous and slender, and being of a constipated habit, the fluids of the stomach and liver being abundant, render them bilious rather than phlegmatic. Their heads are hard and the blood vessels unyielding, which renders them liable to burstings. The diseases which are epidemic are pleurisies and other acute lung diseases. There is much suppuration of the lungs, the cause of which is abdominal tension. Dryness and coldness predispose them to rupture of the lung vessels. Those who possess such a constitution must be given to excess of eating rather than drinking: it is not possible to be at the same time a glutton and a drunkard."

ON THE USE AND ABUSE OF THE MINERAL SPRINGS OF CALIFORNIA.

By John W. Robertson, M.D., Crescent City.

California is rapidly becoming a great sanitarium for the whole world. This is mainly because of her warm and equable temperature, picturesque scenery, and salubrious climate. Although we possess mineral springs in great abundance, and of undoubted therapeutic value, much ignorance prevails, both as to their quantitative analysis and the immediate results that should follow their therapeutical use. People travel to them blindly, seldom consulting even their family physician, imagining that they are "cure-alls," and to be used without discrimination, and in unlimited quantities.

This ignorance is not confined to the laity. Most of our physicians, if consulted regarding the best spring for indigestion, urinary diseases, or rheumatism, could give no intelligent or trustworthy reply. This ignorance is pardonable, for they have received no special instruction upon this subject, nor, were they to seek for sufficient data upon which to base a reply, could anything reliable be found.

In the report of the State Board of Health for 1879–80, there was an able paper by Professor Hatch, in which the location, methods of approach, and chemical composition of many of our springs were discussed.

No attempt has yet been made to so classify the springs that the hard worked physician can readily select and unhesitatingly advise for a definite disease springs which are impregnated with certain medicines. Nor is the time ripe for such an attempt. At least nothing so definite can be said that experience, carefully recorded, is not liable to change. Still, so little has been written on this subject, that a classification of certain springs which are supposed to favorably affect certain diseases is desirable.

Theoretically, springs which are impregnated with magnesia and soda should be laxative and antacid, and probably act well on the liver. Others containing iron should be used for tonics, while hot mud and alkaline springs should affect rheumatism favorably. Experience shows that, while these deductions are, in the main, correct, many trivial causes may so act as to render the waters positively injurious. Experience, combined with theory, should be our guide. Even yet much ignorance prevails as to the quantitative analysis of the majority of the springs. Every month circulars are received purporting to contain exact analyses which prove their resemblance to some celebrated spa. Very often the analyzer is either unnamed or unknown. It is difficult to separate analyses that are reliable from the unreliable. Physicians should understand chemistry, but, as a rule, we do not. Yet we often pronounce with authority as to the ingredients impregnating mineral waters.

Springs are found in such abundance all over this coast that there are few country physicians whose opinion is not asked as to their curative value; ordinarily a bottle of the water is sent in, and on this we must base an opinion. Nothing can be more unreliable than smell and taste, about our only means of investigation. Unwilling to confess ignorance, a hasty and utterly unreliable opinion is given.

A quantitative analysis is one of the surest tests of a chemist's knowledge and skill in manipulation. The many reagents necessary for the detection of the various chemicals, and the difficulty of separating and weighing them, requires a thoroughly equipped laboratory as well as a chemist skilled in the practical details of the work.

The proprietors of some of the springs have put forward claims so preposterous as to entirely upset the possibility of the correctness of their analyses.

One claimed an appreciable amount of iodide of potash, another medicinal doses of arsenic. While traces of both iodide potash and arsenic have been found in water, there has never been enough held in solution to be of any therapeutic value. A possible exception is Bourboule, in Auvergne. Some have claimed to find as high as $\frac{1}{6}$ gr. of arsenic to the pint, but other authorities positively deny its presence in such large quantities.

In the report of 1880, there is an analysis of the New Almaden Vichy water in which the amount of sulphate of lime (gypsum) is ten grains to the quart. Water, under the most favorable circumstances (pure 35° Fahr.) will only hold in solution twenty grains of sulphate of lime to the gallon. In the same report the amount of gypsum in the Paso Robles mud spring is given as eighteen grains, an amount not impossible but improbable.

A few analyses by Professors Hilgard, Rising, and Price can be regarded as accurate, but so little confidence was placed in the majority that, at the urgent request of the State Medical Society, a State Analyst has been appointed, whose duty it will be to examine all waters in equal quantities and on one uniform plan. Professor Rising of the State University now fills this position, and, as soon as the necessary funds are procured, an analysis of all springs will be undertaken. Uniformity of procedure being secured, and there being no interested attempt made to prove a resemblance to some other spring, the result will be of great scientific value.

Not only are correct analyses absolutely necessary, but carefully recorded experience must be sought for. To every mineral spring used in the treatment of disease, a physician should be attached and his advice followed, not only as to the amount of water imbibed, but more especially in relation to those various hygienic rules which should govern the habits of life of each individual patient.

Mineral springs are of such frequent occurrence that, unless they are of easy access and surrounded by fine scenery, little attention is paid to them. They are found most abundantly in what I have named the Valley belt, which includes the coast hills and adjacent interior valleys. They occur in groups or irregular lines. Several theories have been advanced as to the origin of mineral springs. They are found in those regions where, together with abundant deposit of ocean salts, there has been recent volcanic action.

California is, geologically speaking, the youngest of the States. America was gradually upheaved from east to west, and this coast did not emerge till the late tertiary period. Therefore, salts are found in great abundance. Volcanic products are met with everywhere, and, while all active manifestations have ceased, the frequent earthquakes remind us that the crust is not yet in a state of equilibrium. These earthquakes cause fissures, through which, the continuity of the water-bearing veins being interrupted, streams well up.

Water, in its pure state, is a powerful solvent, and, when this action is intensified by the pressure incident to its depth below the surface, it readily dissolves many of the substances contained in the rocks which it permeates. In thermal springs, another powerful factor is added. This heat depends upon the depth of their origin; the hotter they are the more freely do they dissolve and hold in solution certain of the substances contained in the volcanic products and ocean sediments through which they flow. They start deep down beneath the surface and ascend almost perpendicularly. It is possible to approximately calculate their depth. As the average increase is 1° for every fifty-three feet of descent, those springs which have a temperature of 100° originate two thousand one hundred and twenty feet below the surface, 150°, four thousand seven hundred and seventy feet, and so on. This calculation is based on the hypothesis that the temperature at the surface is 60°.

This theory is not in accordance with that usually taught in text-books, viz.: that the water is heated by uncooled masses of lava. According to this theory there would have to be a bed of hot lava beneath every spring or group of springs. This might and probably does happen in a few of the boiling springs, but when called on to explain hundreds, it is found as arbitrary and unscientific as was that of geysers before it was overthrown by the brilliant researches of Bunsen.

It is a scientific axiom that natural phenomena should, when possible, be explained by well known laws rather than possibilities. The first theory is, scientifically, simple, and the phenomena follow naturally. According to the second, all springs of a given region should be of the same or nearly the same temperature, and should hold in solution substances contained in the volcanic products. This they do not necessarily do, though very often they are found, owing to the fact that fissures most frequently occur in volcanic countries. The theory that the heat is caused by chemical combustion, though still popular with the laity, is disowned by chemists. This brief summary of the origin of mineral springs, impresses the fact that the substances composing them differ indefinitely, there being no possibility that the minerals found in any two should be identical, or equal in quantity.

As the crust of the earth is impregnated with so many mineral compounds, indiscriminately scattered, it is not to be presumed that any two mineral springs would nearer resemble than that a few glass beads, rolling at random, should form the same kaleidoscopic picture. For this reason it has been found very difficult to so classify the springs as to correctly indicate both their chemical constituents and their therapeutic action.

Neither the German or French classification based on chemistry, nor that of Althaus on therapeutics, nor Walton's, which makes an attempt to combine the two, has been adopted as standard. In using the chemical classification—saline, alkaline, sulphurous, or ferruginous—the mineral and metallic constituents of the spring are liable to be so intermingled, and to differentiate by such infinitesimal shades, that it might be possible to class certain springs under all of these divisions. Or a spring may be very strongly impregnated with salines, and a very minute amount of sulphuretted hydrogen will so saturate the water that it can be classed as sulphurous.

Certain springs containing the sulphates of magnesia and soda are purgative, but they may be so modified by alkalies as to act either on the liver or kidneys. It is thus seen that no exact classification, either chemical or therapeutical, is possible. Nevertheless, it is found expedient to use the chemical constituents as a foundation on which to base a system that will prove to be a serviceable therapeutic guide. Each spring is a law to itself. While a qualitative analysis will indicate the class of diseases which are most liable to receive benefit, long and carefully recorded experience is the only unerring guide.

Since mineral springs have become so fashionable, and people resort to them indiscriminately—the location and scenery proving a greater attraction than the minerals contained in the springs—it is absolutely necessary that a guidepost should be set up which may turn them in the right direction.

Mineral waters can be prescribed for the following diseases: Neuralgia, chronic rheumatism and gout, skin diseases, scrofula, syphilis, anæmia, chlorosis, dyspepsia, certain conditions of the liver, diabetes, gall stones, gravel, calculus, catarrh of the bladder, chronic bronchitis, and chronic laryngitis.

RHEUMATISM.

For rheumatism, more than for all other diseases, do patients resort to mineral springs. Whether or not this state depends on an acid condition of the blood, alkaline waters prove curative. It must be remembered that there are two types of constitution specially prone to take on this disease—the anæmic and the plethoric. It is the latter class which receives most benefit. This is no doubt due to the fact that the alkaline waters and hot baths prove too debilitating to those already enfeebled.

In muscular rheumatism, and in chronic rheumatism affecting the joints, far more benefit is derived from the use of thermal baths than from the internal use of the water. The baths should not be over 105°, nor the time of bathing over fifteen to thirty minutes. The springs for internal use liable to prove beneficial, are: Adams, New Almaden Vichy, Tuscan, Summit Soda, Bartlett, Volcanic Mineral, Witter, and Fulton Wells.

The following thermal springs are also used internally, but are to be more especially recommended for external use: Paso Robles, Skaggs, Agua Caliente, Shovel Creek, Calistoga, Santa Barbara Hot Springs, Ætna, Harbin, Howard, and Gilroy Springs.

GOUT.

Those suffering from acute gout should be advised against going to mineral springs, unless they put themselves under the care of an experienced medical man. Trousseau long ago sounded the note of warning, and forcibly set forth the danger of cutting short a paroxysm.

It is useless to go into the etiology and natural history of an attack of gout. Though mineral waters and hot baths will cut short a paroxysm, the danger of involving some vital organ is too great to justify us in advising their use.

Gouty patients can, in the intervals between paroxysms, indulge in the moderate use of the water, but only by the advice and under the immediate supervision of a physician. Those alkaline springs rich in carbonate of soda should be selected, such as the Highland, Geyser Spa, New Almaden Vichy, and California Seltzer Springs.

In *chronic gout* mineral waters can be used more freely, but still with circumspection, and only in the intervals between paroxysms. Those alkaline waters strongly impregnated with chloride of sodium should be recommended. The most pronounced springs of this type are the Bartlett, Summit Soda, Saratoga, and Tolenas.

SKIN DISEASES.

Some of our mineral springs have obtained great reputations for their almost specific action on psoriasis and certain chronic, rebellious eczemas. Sulphur waters, and especially those strongly impregnated with salines, have cured when there has been a failure of all other therapeutical resources. They are used internally, but are far more efficacious when applied locally, as baths. When used too strong or too frequently they are liable to produce an irritation or even a subacute inflammation of the skin. Some authorities consider that this is necessary to produce that healthy nutrition of the skin which often follows after their use is moderated or entirely stopped. The springs best adapted to this class of cases are Tuscan, Gilroy, Shovel Creek, Witter, White Sulphur, Agua Caliente, Bartlett, and Fulton Wells.

SYPHILIS.

No mineral spring is of itself sufficient for the cure of syphilis, though very often they are found most serviceable in assisting the action of the medicines usually prescribed. All physicians know that at times, and for reasons they cannot understand, mercury and iodide of potash fail to relieve, but a few hot baths, whether they are mineral or not, will so affect the system as to render them efficacious. Another and most important service rendered us by hot mineral baths is their use as a diagnostic criterion. Persons whose skins are smooth and without blemish, after using hot baths for a few days, will sometimes find their bodies covered with a well marked syphilitic eruption. In cases of suspected contagion this is a most important means of diagnosis. For this purpose any of the hot sulphur springs can be recommended.

SCROFULA.

No disease or discrasia is more benefited by mineral water than is scrofula. Strong saline waters should be selected, especial reference being paid to the amount of chloride of sodium they contain. The water is to be used both for baths and internally. The Pacific Congress, Hot Borate, Ætna, Tuscan, Bartlett, Paso Robles, and Calistoga Springs are indicated, and their therapeutical effects will be in the order named.

ANÆMIA AND CHLOROSIS.

The chalybeate springs are to be prescribed, such as the Pacific Congress, Soda, Bonanza, Litton Seltzer, and Geyser Iron Springs, all of which contain iron in appreciable quantities.

NEURALGIA.

This disease is often dependent on a depraved, anæmic condition of the system. Whatever builds up the health and invigorates the body will act favorably on the neuralgia. For this reason the chalybeate waters just mentioned are to be recommended. Good results have been claimed from the use of thermal baths.

CHRONIC BRONCHITIS.

Persons suffering from this disease have been divided into two classes—the lymphatic and the sanguine. For the lymphatic, sulphur waters both internally and externally are highly recommended. Such springs as the Tuscan, White Sulphur, Witter, and Pearson should be advised.

For those of a sanguine temperament, springs containing carbonic acid, especially those rich in bicarbonates, are indicated. A mild and uniform climate, moderate elevation, and freedom from fogs, are also essential. Above all other springs the Highland comes the nearest fulfilling these requirements. Nature seems to have lavished her gifts in rendering it peculiarly suitable for this particular disease.

CHRONIC LARYNGITIS, OR CLERGYMAN'S SORE THROAT,

Is a disease frequently met with on this coast. So rebellious is it to internal medication, and so often does most persistent local treatment result in but temporary improvement, that recourse should be had to those of our mineral springs which experience teaches us acts most beneficially. Alkaline springs, impregnated with chloride of sodium, and sulphur waters rich in soda, act most efficiently. The Geyser Spa, Hot Borate, Ætna, Paso Robles, Calistoga, White Sulphur, Summit Soda, and Volcanic Mineral Springs are to be selected.

DYSPEPSIA.

This word covers a multitude of diseases, or rather abnormal conditions of the digestive apparatus.

The secretion of the stomach may be deficient in acidity or overacid; or there may be flatulence, gastralgia, constipation, or hepatic complications. There can be no certain rules laid down to cover all these cases. Much careful consideration is necessary to properly discriminate in the selection of a mineral spring.

Ringer, advocating the use of alkalies for the purpose of increasing the acid secretion of the stomach, directs that they shall be administered just before eating; claiming "that alkalies applied to the orifice of glands with acid secretions increase their secreting power, while alkalies applied in a corresponding way to glands with alkaline secretions lessen or check this secretion."

On the other hand, when there is excessive acidity, the alkaline waters should be used after eating, during the process of digestion.

For *gastralgia* alkaline waters are indicated, but they are only to be used in the interval between the paroxysms of pain. For all of these forms of dyspepsia, alkaline waters, rich in carbonic acid and the bicarbonates, are to be chosen, such as Highland Springs, Napa Soda, Summit Soda, Soda, Litton Seltzer, California Seltzer, and Geyser Spa Springs.

Those who experience a sense of fullness and oppression after eating, and especially where this is associated with *flatulence*, should avoid alkalies and seek those springs rich in salines. Carbonic acid would only add to the discomfort and distension already existing. The saline springs chosen should be those containing chloride of sodium in abundance, such as the Pacific Congress, and Tolenas.

RENAL DISEASES.

Like dyspepsia, this term includes diseases occurring in many and protean forms. The function of the kidneys is excretory. They act as a sieve in separating poisonous and useless products from the blood. These products often set up an irritation in some part of the urinary apparatus.

A most frequent example of this is found in patients of a gouty diathesis, whose urine is loaded with lithic acid. This condition is commonly known as lithiasis or gravel. There is nephralgia and more or less irritation of the whole urinary tract. When severe the cooled urine is reddened by an orange colored deposit of lithic acid. Mineral waters act doubly well in these cases, both by correcting the condition of the system causing this, and by its immediate action on the acid condition of the urine. The waters chosen should be those strongly impregnated with alkaline carbonates, such as Ætna, Bartlett, Byron, Tolenas, Soda, and Skaggs Hot Springs.

On the other hand, where there is pronounced alkalinity of the urine with phosphatic deposit, calcic waters should be used. The springs containing carbonate of lime in the greatest abundance are: Highland, Ætna, Summit Soda, Napa Soda, Pacific Congress, and Geyser Spa. As these contain so many of the other alkaline carbonates, we may find by experience that some of them are injurious when used for this phosphatic condition of the urine. Calculi being composed of the solidified deposits of gravel, may be of either acid or phosphatic origin. Therefore, the same directions are to be given as for gravel.

DIABETES

Is supposed to be favorably affected by mineral waters containing chlorides, carbonates, and the purgative sulphates. There is no spring on this coast of which there is an authoritative analysis that will satisfactorily fulfill all of these conditions. Could the published analysis of the New Almaden Vichy be relied upon, that spring might be of service. For reasons already explained, this analysis is not trustworthy.

Though some physicians have claimed good results from the use of mineral waters in Bright's disease, the best authorities forbid their use. Beyond all question a change of scenery, climate, and surroundings would have a good effect on this as well as on all other debilitating diseases. This remark is doubly true of consumption. This class of cases, in their fight for life, flock to the springs, and by sweating and purging themselves, are irreparably injured.

This brief summary of diseases, and the springs which are supposed to be most serviceable in their treatment, cannot, for many reasons, be considered unchangeable or final. There is little recorded experience, because patients have pursued no system in their use of mineral water.

Should physicians take this matter properly in hand and judiciously advise their patients, and make report to the proper authorities, it is probable that before the next Report much new information that would be of practical importance would be gained. One source of uncertainty will surely be overcome. Professor Rising is now at work correcting faulty analyses and bringing uniformity out of chaos. When this is accomplished, a foundation will be laid that is absolutely necessary to the pursuance of this work.

ON THE NECESSITY OF QUARANTINE ALONG OUR SOUTHERN FRONTIER.

By M. F. PRICE, M.D., Colton, Cal., Correspondent of the Board.

As a matter of considerable importance, attention is called to the fact that this part of the State is very liable to be invaded by contagious diseases from foreign countries, particularly Mexico.

The Southern Pacific Railroad has connections at Benson, Arizona, with the Sonora Railroad, which runs to Guaymas, in Sonora, Mexico. Yellow fever is almost indigenous in Sonora, and there is a great deal of travel between the two countries.

Refugees from any epidemic in Sonora naturally seek a way of escape by the Sonora Railroad into Arizona, and thence into California by the Southern Pacific Railroad. Guaymas being on the Gulf of California, is connected by steamers and other vessels with the lower Mexican, Central, and South American ports, as well as the Isthmus of Panama. Vessels also ply between Guaymas and California ports. Passengers arriving at Guaymas, and learning that they might be quarantined at San Diego, Los Angeles, or San Francisco, would be inclined to think they might be able to "slip in by the back door," left unguarded, would leave the vessel, and take the railroad for Arizona, and thence into California unmolested, thus counteracting any good which might have been accomplished by quarantine at the seaports. A quarantine officer at Nogales, on the Sonora Railroad, at the boundary line of Arizona and Mexico, might be able to stop infected persons, but such officer would have to be maintained by the General Government. But, in case of any epidemic in Sonora, there are other means of its introduction here than by the Sonora Railroad. All the Mexican settlements pour their inhabitants into Arizona by stages, teams, etc., and these fleeing persons soon strike the Southern Pacific Railroad at various points, and thus get into this State by the most direct route, and escape the quarantine, if any should be attempted at Nogales. The climate of Sonora, and the insanitary habits of the people, make it peculiarly liable to epidemic disease, particularly yellow fever and Asiatic cholera, and, therefore, it is very necessary for this State, through the State Board of Health, to take steps to prevent their introduction here. The Southern Pacific Railroad is also the direct line of communication from New Orleans and all the gulf ports, as well as Central Mexico. In view of all these facts, it seems to me very important that some provision should be made for an effectual quarantine at some point on this line where it will protect the State from the introduction of contagious diseases. I have been on the line of the Southern Pacific Railroad in Arizona and California for over four years, and have studied the situation thoroughly, and am satisfied that it is an urgent necessity.

Arizona, being a Territory, has no effective quarantine laws, and the railroad a large part of the way runs through a desert and uninhabited country; therefore infected persons and cars meet no obstacle to an easy entrance into this State.

The rational place for a quarantine station is, of course, on the border, but on this route, I think, this is impracticable. East of this is the Colorado Desert, which extends from the Colorado River, our eastern frontier, to the mountains, and is some one hundred and fifty miles wide at this point. Therefore, the most suitable point would seem to be at the western border of the desert where the railroad enters the San Gorgonio Pass. Banning is the first settlement and is quite a prosperous community, hence the quarantine station should be east of that, say at the railroad station called Cabezon. At this point I think both wood and water can be had, and it is far enough from the settlements to protect without danger of communicating the diseases.

As already said, I think it quite important that this possible and probable route for the introduction of yellow fever and cholera should be looked after, and means adopted to protect the State, and it is to be hoped that the next Legislature will see that funds are provided for so desirable an object.

YELLOW FEVER IN CALIFORNIA.

By **Alfred M. Perry**, M.D., San Francisco.

A visitation of yellow fever to the Pacific Coast States would, five years ago, have been considered an impossibility. But, in view of the appearance of yellow fever on the west coast of Mexico in places which have a similar climate to parts of California, this danger is not chimerical. Yellow fever has existed all along the east coast of Mexico and Central America since 1800, but it never once crossed the country until 1882, when it ravaged many of the towns on or near the west coast of Mexico, latitude 23° north, particularly Mazatlan, Guaymas, and Hermosillo, in about latitude 28° north. These places have fancied themselves secure from yellow fever, owing to their peculiar climatic conditions, of dry climate, scanty rainfall, and low night temperatures. Since 1882 the yellow fever has appeared every year at these places, and we may consider from past experience that the disease is and will remain endemic in the west Mexican ports. There is a frequent and increasing commerce both by railroad and sea between these ports and the southern part of California, which must be considered as in some danger during the warm season. According to Blodgett's Climatology of the United States, Los Angeles, San Diego, Riverside, and most of the San Joaquin Valley, has a mean Summer temperature of 75° F. This is very near the same Summer temperature as Lisbon, Portugal, and Cadiz and Barcelona, Spain. The other climatic conditions of San Diego are similar to those of southern Spain and Portugal, and yellow fever has ravaged these places several times during this century. The mean Summer temperature of the Mexican Gulf coast of the United States, is 82°, and this is the favorite haunt of the yellow fever. This disease originates at a temperature above 80° F., flourishes at 70° F. and above, below 70° it declines, and cannot be propagated at or below 62° F.

From this relation of the disease to temperature, we see that none of the Pacific Coast ports above Point Conception, latitude 34° N., are in any danger, owing to their low mean Summer temperature of 59° to 62°. Yellow fever has several times been imported, but it has never spread in San Francisco. A quarantine should be maintained every Summer against the seacoast towns of Mexico, and a medical inspection at points where the Mexican railroads enter the State; this duty should be taken up by the State, and a regular annual provision should be made for its maintenance. The quarantine should, however, only be put in force by proclamation of the Governor, on request of the State Board of Health.

YELLOW FEVER CONSIDERED IN ITS RELATION TO THE STATE OF CALIFORNIA.

By Wolfred Nelson, C.M., M.D., Member of the College of Physicians and Surgeons Province Quebec, Canada, late of Board of Health, State of Panama, South America, and Correspondent of State Board of Health, California.

Yellow fever is an acute specific disease, now said to be caused by a special organism or germ. This organism has been recognized, isolated, and cultivated by Dr. Domingo Freire of Rio de Janeiro, Brazil, and Dr. L. Gererd, late Senior Surgeon to the Inter-Oceanic Canal Company, at Panama, South America.

Many years previous to the exhaustive scientific experiments of Drs. Freire and Gererd, Dr. Hassal of Southampton, England, during an outbreak of yellow fever there, discovered in the blood of its victims, in the corpuscles, "a hitherto unknown microscopic vegetation."*

I am perfectly acquainted with the experiments conducted by Dr. L. Gererd at Panama. They were made during my residence, as a practitioner at Panama, 1880–1885. During a part of the time my brother, the late Dr. George W. Nelson, was Dr. Gererd's Assistant Surgeon at the Canal Hospitals.

An account of Dr. Gererd's methods of cultivating the yellow fever germs, and of his being inoculated, was written by him, for the *Canada Medical Record*, Montreal, and translated by the writer, and published this Fall. Dr. Gererd's experiments, extending over three years, confirmed the views held by many students of this awful disease, and proved conclusively the great resisting power of the germs to destructive causes, illustrating how they may be dormant for long intervals of time, and then spring into new and death-dealing activity. The germs merely require the necessary conditions.

WHAT ARE THE NECESSARY CONDITIONS?

A temperature of 72° F. and upwards, for a prolonged period. For ordinary surroundings, a moist, swampy soil. Oftentimes an admixture of salt and fresh water. Vegetable and animal substances passing to decay. Of course, in the presence of heat and moisture. In short, all the factors that play an important part in the rapid growth and decay of vegetable life. Add to these the refuse of cities and towns, at sea level: substances wetted by one tide, and left under a burning sun during its ebbing. This makes the list fairly complete. In such localities it is evident that the germs of yellow fever find a congenial soil.

A part of the conditions already given, within as well as without the tropics, produce malaria. The exact role of malaria in yellow fever has not been determined. For one, I am of opinion that the fearful mortality of yellow fever subjects at Panama, and on the isthmus generally, is largely due to the previous effects of malarial poisoning.

---

* Cyclopœdia of Medicine Ziemssen, Vol. 11, Art. Yellow Fever, Haenisch.

YELLOW FEVER ON THE ISTHMUS OF PANAMA.

I have seen yellow fever on both sides of the isthmus. My knowledge of it, may be stated thus:

Yellow fever is an acute infectious disease, ordinarily not contagious, but, under certain atmospheric conditions, not yet explained, the disease undoubtedly developes contagious properties and epidemics result.

The disease is ushered in, in a variety of ways. It may be preceded by languor or malaise. Generally it was characterized by a chill, often very severe, lasting from one to two and three hours. The length of the chill having a marked significance; severe chills marking nearly all the fatal cases. The reader will please remember that I am detailing my own experience, compiled from voluminous notes, and five years close study of the disease. Again, the disease may be ushered in by sudden nausea and faintness, without any warning, as in my own case, during the isthmian epidemic of 1880. Headache is always met with; generally well marked frontal headache. Frontal headache and gastric irritability in newcomers, as pointed out by Dr. Chas. Belot of Havana, is very suspicious. The headache may be occipito-frontal. A history of constipation obtains in all cases. I can recall but a single exception, that of a case where fever was preceded by a tropical diarrhœa. No condition of health gives immunity. Pains in the legs, and pain in the sacrum; the latter intense and agonizing. I shall never forget my own experience. It seemed as if a legion of fiends were trying to dig out my sacrum with hot pincers. The pain is excruciating and indescribable. In the majority of cases the patient's face was red, just like the face in scarlet fever, the boiled lobster color. The eyes at first were clear, providing that there had been no antecedent hepatic disease. Later they became suffused, injected. The skin was hot and dry; in many cases a peculiar biting heat was felt. It was strange, causing a tingling in the hand, as if a current of electricity was playing over it. Pulse full, hard, and slow, varying from 65° to 80°; temperature, first stage, 100° to 103°, where the cases proved fatal in the first stage rising to 104° to 106°, to fall slightly just before death. In the second stage, or "period of calm," as it is called, it fell, a remission only. At the beginning of the third stage, or the stage of "secondary fever," it runs up again. Respiration during the fever is hurried; at times a peculiar moaning respiration. The respirations varied from thirty to forty per minute, at the close of the third stage fifty to sixty, becoming less with the fall of temperature, just before death. Great thirst. Restlessness, no position giving any ease. Urine, at invasion, normal, but high colored. In the majority of cases at Panama they died during the first stage, when all or nearly all the symptoms detailed and to be detailed, appeared. They do not appear in any stated order.

Within twenty-four hours after invasion, all the symptoms were intensified, sacral pain and headache increasing. Epigastric uneasiness and tenderness developing early in many cases; the slightest pressure on the stomach causing intense pain; next, nausea and vomiting; at the first, clear—well named "white vomit" by Surgeon-General Blair, of British Guinea, South America; tongue at first slightly coated. In patients who had suffered from intermittent or bilious remittent fever, the characteristic tongue was not so well marked. It may be clean or slightly furred at base; later, fur increases from behind forwards; the tip and edges take on a deep red, and towards its close a fiery red; gums also get red, also mucous membrane of the mouth; the whole mucous tract suffers; later, in many cases, sore throat is complained of, due to stripping of the mucous membranes; often blood oozes from the denuded tongue and gums, giving an indescribable fetor to the breath; occasionally a peculiar and characteristic odor is met with, exhaled by the patient's body; it never will be forgotten; it is a very bad omen. Dr. Stone, of Louisiana, first pointed it out. Where patients die in the first stage, the urine always shows a large amount of albumen; in some cases it does not appear until the close of the second, or beginning of the third stage. Albumen is a *sine qua non* in yellow fever. Many authors assert that it is pathognomonic. It never was absent in isthmian cases; suppression of urine is a late and fatal symptom. The bowels, if acted on freely by the sulphate of soda, to be referred to, may not furnish any information; diarrhœal motions are followed by "black vomit motions" in many fatal cases. The motions may precede or follow "black vomit;" there is no fixed rule. Black vomit follows the constant retching and "white vomit" of Blair. Black vomit is happily named, and shows innumerable fine particles of flocculi; hence its name "black vomit," or "coffee ground vomit." Frequently patients are seized with it without any warning; it spurts through the mouth and nostrils; again, the patient may be quietly resting on his back after the subsidence of the sacral pain, when the "black vomit" spurts from his mouth up into the air over everything, *per saltem*, as an old writer has described it.

Black vomit has a peculiar acid odor, is slightly acid to the taste. I did not have "black vomit" during my case, but to clear up a vexed point in my mind, I tried several mouthfuls of it. It will hardly become an article of diet. The vomit on settling deposits its "coffee ground" particles, the fluid above being of the color of diluted black tea. "Black vomit" is not bilious vomit, an important point to clear up in many cases of true bilious-remittent fever. Black vomit, as a symptom, is one of grave import; nearly all die who have it. During an epidemic in Lisbon, many recoveries were reported among total abstainers who had had it. Being total abstainers undoubtedly has saved hundreds of lives. The past asserts it, and the present proves it. Again I speak from my experience. I can recall several cases that were deemed hopeless, where the patients got well, but they had been practically, total abstainers. Isthmian and Brazilian experience proves conclusively that moderate drinkers are among the first victims. Such are the facts.

Here I must branch off, and state that two classes of cases are met with on the isthmus; cases that I took the liberty of terming "uncomplicated" and "complicated." By "uncomplicated," I mean the disease occurring in a new arrival. In these, brain symptoms and delirium, etc., were common. The "complicated" cases occurred in those who had been on the isthmus for six months to several years, and in one case sixteen years, and were full of malaria.

Regarding the coloration of the skin; the yellow tinge from which the disease derives its name, may or may not be present during life. If so, the eyes show the jaundicing first. The color generally is met with during convalescence, and post-mortem. It may be shown in* cases in their early stages, by making firm pressure with the hand over the chest or abdomen, and then removing it suddenly. The imprint of the hand will be found mapped out in a rich canary yellow, while the adjacent parts have a dull mahogany color. The icteroid condition is there, and the temporary suspension of circulation in the capillaries show it. Quite by accident, I noticed this condition in an early case, and afterwards used it for diagnostic purposes.

---

* Cyclopedia Pr. Med., Ziemssen, vol. 11.

Next to the second stage or "period of calm," as it is termed, there is a marked fall of temperature, a true remission. The patients feel almost well. I can illustrate this: In two such cases, both mine, the patients (husband and wife), new arrivals, just married, in direct violation of my orders, got up and left their beds and walked about. In the woman's case the secondary fever came on that night—a vaginal hemorrhage—she died the next morning at four. His temperature ran up to 106°—he died two days later.

Again, I must diverge, and state that the true yellow may be a disease of a single access or paroxysm. When it is so, the patient dies, or enters on convalescence after a single access of fever. In the great majority of cases, "the period of calm" is deceptive, the remission in the symptoms lasting twenty-four to thirty-six hours to merge into the third stage, or that of "secondary fever," when albumen, black vomit, etc., appear. In cases ending fatally in this stage, all the symptoms crowd each other, and death closes the scene.

In cases complicated by delirium, painful scenes result. I can recall one: A healthy young Englishman was stricken down on landing; his case closed with furious delirium. Four strong men had to hold him down. They are dreadful scenes, and never to be forgotten.

Such is my experience of yellow fever at Panama. Yellow fever must be seen and studied in its own habitat to fully impress a professional man. I have seen the disease afloat. It gets into the shipping at Panama, cutting off a victim from time to time. I recall several cases, where passengers north and south, via the isthmus, got the germs of the disease and died en route; this remark applies equally to the Atlantic and Pacific Oceans.

POST-MORTEM APPEARANCES.

My small experience under this heading simply confirms what an old writer has said, Dr. Greensville Dowell, that yellow fever has no pathology. The appearances are so variable in patients cut off by the same symptoms that no reliance can be placed on them.

The Liver.—This organ differs, presenting a variety of conditions. I have found it fatty and oily, again seemingly normal in size and color, again mottled. The chamois colored liver is supposed to be the yellow fever liver. I saw but one; in the practice of a friend.

The Kidneys.—They vary, nothing constant. I met them large and small, looking normal.

The Stomach.—This organ presented signs of acute inflammation. Generally its coats were thickened. It contained more or less "black vomit," its internal surface showing innumerable pink points or foci of congestion, and small deposits of blood. Dr. Castellaños, a Spanish practitioner at Panama, and formerly an hospital surgeon in Cuba, told me that it was the only constant condition found by him, and he had made over one hundred autopsies while there.

The Blood.—I found in fluid condition. Its specific gravity, taken by me two hours after death, was almost normal. To this fluid we must look for important information.

Bladder.—Two or three drachms of highly albuminous urine may be found in the bladder.

Rigor Mortis.—This sets in at once and is marked.

Color of Skin.—The rich canary yellow of the skin, at times contrasts with a rich purple mottling.

Increased Temperature.—Post-mortem.—How are we to account for the increased temperature of yellow fever cadavers? What is the condition that then obtains, and would constitute fever during life? During this month (August) it was my good fortune to meet Dr. A. J. Reese, of Mobile. The germ diseases were discussed *in extenso.* Is this post-mortem heat due, as he suggests, to the role of the microbes still feeding on the "host," or infected body?

Personally, I am of opinion that in the near future pathologists will find the cause of death, in the blood, a true necræmia. If this view, which I believe is peculiar to myself, be proven, we have an explanation of the majority of symptoms of specific yellow fever. Much remains to be unfolded about yellow fever. Many patient toilers are working at the problem, and a solution may be reached when least expected.

TREATMENT.

Here I take the liberty of stating that yellow fever has no treatment, properly so called. Four centuries of the disease have taught us nothing, or rather people have failed to learn. To-day no one, or any combination of remedial agents, exerts any influence on the disease. The various text-books that I am familiar with, in English, French, and Spanish, refer to remedies by the dozens, a practical acknowledgment that the disease has no treatment, properly so called. It is purely symptomatic.

After trying many medicines, and seeing my patients die, with an occasional recovery, due to the patient's previous condition rather than to any skill on my part, I settled down on a line of treatment, so called, as follows: On being called to see a patient, say at the outset, I played a trump card and made quinine the diagnostic agent. Pray remember that a few hours in such cases, be they pernicious fever or yellow fever, may mean a life, pernicious fever killing in from twenty-four to thirty-six hours. If pernicious, the quinine was a specific remedy. My prescription was as follows:

℞. Quin sulph., ʒi.
Acid. sul. dil. B. P., ʒii.
Sodæ sulph., ℥ii.
Tinct. Cardam co. of B. P., ʒii.
Aq. ad., ℥viii.
Misce. Fiat mistura.
Signatur.—Take a quarter at once and repeat in two or three hours. W. N.

This remedy was given diluted with water. It made a perfect solution and was readily absorbed. Its rejection by the stomach was the exception to the rule. It was my "multicharge gun"—it gave me the best results.

If the case was purely malarial, the quinine and saline met it. The sulphate of soda acts like a charm, free bilious motions following. Every dose contained fifteen grains of quinine and half an ounce of sulphate of soda. If after two doses the temperature remained high, 100° and upwards, with the other symptoms, yellow fever was the verdict. Very valuable time had been saved and the bowels freely opened, a most important indication.

I may remark that bilious remittent fever and intermittent and the fever of acclimation, so called, may cause doubts at the very outset, but quinine meets the first and second, and the third has not the characteristic symptoms of true yellow fever.

Next, to bring about free action of the hot and dry skin. At first I tried hot baths, and later nitrate of pilocarpine, and abandoned both, using instead a vapor bath, called in Peru "Dr. Wilson's treatment," being that of an English physician, who used it with success during an epidemic there in 1854 and later. The patient was placed on a chair with a wooden seat, all clothing being removed previously; he was then covered with blankets, that were closely tucked in under the chin; a spirit lamp was then lit and placed under the chair. To this I added a foot bath, all under the blankets, the water as hot as the patient could bear it. Finally I grafted on some Jamaican treatment, and gave a pint of hot lemonade. Under this combination a profuse perspiration followed, usually within ten minutes; it fairly ran off them. As soon as it was freely established they felt better at once; the scarlet color of the face was less and the pulse was softer. If the bath caused faintness, that was guarded against by a shorter exposure. The patient then stood up, the chair was slipped from below the blankets, and he was lifted to bed, *en masse*, to prevent escape of heat or moisture. More blankets were put over him. In many cases the free perspiration lasted for one or two hours, to the marked relief of the patient and the lessening of the symptoms. If at the expiration of that time the skin again grew hot and dry, the same measures were repeated, half a dozen times if necessary. Thus two important indications were met at the very outset—first, free motions from the bowels (remember the previous constipation); secondly, full and free action of the skin. According to my way of thinking, the patient was placed under the most favorable conditions for fighting the disease. Then the rest of the treatment was in order—sinapisms directly over the stomach, for vomiting. At times they were beneficial, at times wholly useless. For diet, iced milk; beef soup, without fat; cool acid drinks, such as lemonade, in very small quantities (the stomach had to be watched); aerated waters; small pieces of ice in the mouth.

The symptoms must be treated as they declare themselves. Some recommend iced champagne. I gave it a fair trial and abandoned it, plain soda water answering the purpose. Despite care and watching the majority died, with an occasional exception. I can recall twenty-seven admissions to the Canal Hospital with but one recovery, and out of forty-two cases sent to the Charity Hospital not a single recovery. I have known the ice-pack to give great relief; in one case that I saw, in consultation in Colon, in 1880, with Dr. Williamson, I suggested and used it. The temperature after two hours' application of ice-cold cloths fell two degrees, and the patient recovered after black vomit, but he was a young man of excellent habits with a robust constitution. In another case that I saw in consultation, where the temperature ran up to 106° and the patient was delirious, the same ice-cold cloths reduced it to 104½°, when the patient recovered his reason, to lose it again when the temperature reached 106°. He died. He was the late Dr. Allan, Port Surgeon to the Pacific Mail Steamship Company at Panama. His successor also contracted the disease, was given up, but recovered.

The application of cold to the head also gave some relief. Such was my handling of cases. The milder cases got well; occasionally a very bad case pulled through.

TREATMENT DURING CONVALESCENCE.

Great care had to be exercised, owing to the extreme irritability of the stomach. A meal of solid food has been known to cause death on the tenth day. Slops are in order. Extreme care, bathing, and thorough disinfection of the patient's effects and room.

DURATION OF THE DISEASE.

The majority of the cases were fatal on or before the fifth day, closing with "black vomit," suppression of urine, etc. In them it was a fever of a single access or paroxysm. Other cases passed through the "period of calm" and died in the third stage, from the sixth to the ninth day. Cases of a typhoid character were rare; they lasted fifteen to twenty days, generally terminating in recovery.

SEQUELÆ.

Boils, pimples, parotid swellings and suppuration, intermittent fever; the jaundiced skin lasting for weeks. I was of a rich canary color for a month, truly a sight to behold. People never were curious about it; they got out of the way.

THE FUTURE OF YELLOW FEVER.

Now that Drs. Freire and Gererd have discovered the germ, named by Dr. Freire the *miccrococcus zanthogenicus*, let us hope that a new era is at hand, and that the sway of yellow fever is over. The gentlemen named have conferred on the age a discovery of the utmost importance; one that will protect man against this most fatal disease. It may be the lot of some happy individual to discover some remedy that will kill the germ in its habitat, the blood. With inoculations to protect and prevent, and a specific to kill the germ where it has invaded the system, with such agents our profession can save the lives of hundreds of thousands. We want a remedial agent or a germicide for yellow fever; I like the term and make no apology for using it. Intermittents and bilious remittents have a specific in quinine. That a solution of this kind will be found there can be no doubt. Pathologists and microscopists are working. Intermittent fever has its *bacillus malariæ*, quinine is its germicide. When that time comes travel within the tropics will be divested of its terrors, and the commerce of nations will be free and untrammeled.

HISTORY OF YELLOW FEVER.

By early writers yellow fever has been traced back, by some to the sixteenth, and others to the seventeenth century. One claiming that it first appeared in Barbadoes; another refers to the time of Columbus, and affirms that when he landed in the West Indies, in 1493, in the Island of Santa Domingo, he lost the greater part of his crew within a year of the arrival, of a disease described "as yellow as saffron." *

The West Indies are looked upon as its home. Haenisch says: "The Antilles are the habitat of yellow fever, and in them it may be said to be endemic." †

---

* Quain's Dictionary of Medicine, 1885.

† Cyclopedia of the Prac. of Med., Ziemssen, vol. 11.

"It appeared in the Darien," now called the Isthmus of Panama, "in 1514." *

The disease has been taken to England twice, to spread and cause great dismay. First, by the Royal Mail Steamers from St. Thomas, Danish West Indies, to Southampton, "in November, 1852, they had one hundred and twenty-four cases en route, with a mortality of fifty. Proportion, 1 in 2.3."†

Next, the disease appeared at Swansea, in Wales. "On the ninth of September, 1865, the 'Hecla,' bark, laden with copper, returned from Cuba to Swansea with one case of yellow fever on board; three having proved fatal on the voyage home; the remaining case, that of James Saunders, and two convalescents, were sent on shore. Soon, also, the crew had left the ship and distributed themselves over the town, and two passengers with their luggage were landed. Moreover, a good many people boarded the vessel as she entered the dock. An outbreak of yellow fever thus originated ashore, and in a well drawn up table of the cases, Dr. Buchanan shows their invariable connection with the source of the malady, or indirectly, adding further proof of its infectious nature, should such be required."‡

Thus there were two outbreaks in England late in the season, one in September and the other in November. Since 1761 the Island of Cuba has suffered severely from yellow fever. The City of Havana is one of its hotbeds, just like the City of Panama.

Vera Cruz, Mexico, is credited with the disease from time immemorial.§ In Brazil, at Rio de Janeiro, it is endemic, and occasionally epidemic, killing hundreds. It has appeared in Venezuela; in British Guinea repeatedly; Ecuador on the Pacific; in Nicaragua, Costa Rica, Guatemala, 1852 and 1853; San Salvador, Spanish Honduras, and Mexico; in nearly all the islands of the West Indies. It has been epidemic at St. Nazaire, France, Lisbon, Portugal, Spain, Gibraltar, Senegal, Africa, etc.

Last year, 1885, it was epidemic on the Isthmus of Tehuantepec, Mexico.

YELLOW FEVER IN THE UNITED STATES OF AMERICA.

Now let us consider what it has done in the United States of America. The map in Dowell's work on Yellow Fever and Malarial Diseases, Philadelphia, 1876, shows how yellow fever has traveled in the United States. Since 1668, it has invaded the following States: Louisiana, Mississippi, Arkansas, Indian Territory, Tennessee, Alabama, Georgia, Florida, North and South Carolina, Virginia and West Virginia, Kentucky, Missouri, Indiana, Maryland, Pennsylvania, Delaware, Connecticut, New Jersey, New York, Massachusetts, Vermont, New Hampshire, and Maine. I may add that it has reached Canada.§ The text with Dr. Dowell's map states: "It will be seen that yellow fever has spread to two hundred and twenty-eight cities and towns in twenty-eight States, appearing seven hundred and forty-one times, causing sixty-five thousand three hundred and eleven deaths (up to 1876, when Dowell's work issued). In nineteen out of twenty cases it was introduced." Dowell adds, "yellow fever, like cholera, leaves its habitat and travels."

---

* Report National Board of Health, Washington, 1879.

† Lancet, April, 1853, quoted in Dowell's work.

‡ Quain's Dictionary of Medicine, 1885.

§ Yellow Fever, Dr. Gazzo, Louisiana.

La Roche, in his remarkable work,* describes the epidemics of New York, Philadelphia, Boston, New Orleans, Charleston, Providence, and Mobile.

Dr. Haenisch states: "The yellow fever has never yet been observed on a ship, which has not in some way come into contact with the land, or with some other ship where the disease already prevailed."† Again, he says: "Yellow fever is most probably produced by a living miasm, which has hitherto entirely eluded microscopic demonstration, but the existence of which is argued from many facts. * * * But its seeds long retain their poisonous nature; they are, under certain external circumstances, quite indestructible, and when placed in suitable external conditions are capable of kindling an epidemic even far away from their place of origin."

The disease is spoken of, by the same able writer, as a "specific poisoning in the blood. * * * In any event, yellow fever belongs among the most destructive diseases." "The prophylactic measures which serve for protection against yellow fever must be administered by the State * * * and then there is always the possibility of conveying the poison by land from an infected port to one hitherto free, by means of goods sent by rail, or by means of the personal effects of men * * * and there need be no question that important protection is to be gained by wise quarantine regulations."†

The value of quarantine is fitly illustrated by the following from the *Telegram*, of Mobile, of date August 21, 1886: "During the present month some six or eight ships have arrived at Ship Island quarantine station, which either contained members of the crew sick with yellow fever, or had lost men on the passage from Colon by that disease. By carefully isolating the quarantine station from the main land, and keeping all communications closed, the physician in charge has prevented any spread of the disease. These cases were undoubtedly yellow fever of a virulent type, the type of the Isthmus of Panama, and the confinement of the disease to the station is one more evidence of the benefits of a strict quarantine, remote from crowded communities. Had these ships been allowed to come up the Mississippi to New Orleans, there is every reason to believe that ere this, with so many cases of possible sources of contagion, an epidemic would have been developed. As it is, New Orleans and the entire coast is enjoying excellent health, and the yellow fever at quarantine is disappearing gradually with the convalescence of the patients."

REGARDING ELEVATION IN YELLOW FEVER.

It has been stated that yellow fever in the southern United States, never has been observed above six hundred feet. This experience seems to be peculiar to them. In Jamaica, it was observed in the Blue Mountains at an elevation of three thousand feet. During the Mexican epidemic—west coast of 1883—it reached Colima, fully two thousand feet above sea level. During an epidemic in Peru, it reached Arequipa, seven thousand feet above sea level, and again at Cuzco, Peru, eleven thousand three hundred and seventy-eight feet above sea level, there to commit fearful havoc, and finally it got into the highest elevations of the Andes, fourteen thousand feet above sea level.‡

The above upsets all previous statements regarding the climbing power of yellow fever, and shows conclusively that knowledge regarding yellow fever is yet in its infancy.

---

* La Roche, Yellow Fever, Philadelphia, 1855.

† Cyclopœdia of Medicine, Ziemssen, vol. 11.

‡ Quain's Dictionary of Medicine, 1885.

THE PRESENT TENDENCY TO EPIDEMICS.

What significance has the present tendency of disease to take on epidemic character? This seems to be the question of the hour, both in the Old World and in the New, the whole being emphasized by the fact that cholera has started on a grand tour. Truly "coming events cast their shadows before." In the Island of St. Thomas, D. W. I., smallpox preceded cholera in 1867–68. In Hayti, in 1883, a severe epidemic of smallpox merged into one of yellow fever.

Last year smallpox committed fearful havoc in the City of Montreal. True, it was among the unvaccinated French Canadians, but the conditions necessary for an epidemic were there. Remember, that one epidemic predisposes to another; or to be more accurate, the atmospheric conditions necessary for one disease, extends a welcome to another.

This year note the outbreak of smallpox in Iowa, a malignant type of the disease. It has appeared in the Gulf of St. Lawrence, in the French Island of St. Pierre. Again, smallpox was raging in Santiago de Cuba in July of this year. Recent advices show its presence in the Island of Jamaica. Many cases and many deaths. More cholera in Tonquin. In Italy, Austria, Hungary, China, and the Corea. The role played by cholera during the past three years is familiar to all close readers. Its march is onward. The epidemic tendency or "pandemic wave," as it is termed, should cause all to think, particularly those in power, who are intrusted with the welfare and safety of the people.

The epidemic of yellow fever at Panama, in April, May, and June of 1886, with a new outbreak of yellow fever on the west coast of Mexico, Gulf of California, in July, that has made Guaymas, Mexico, quarantine against the gulf ports, furnishes food for thought. Some authors write learnedly of cosmo-telluric influences, using words not intelligible to themselves, to people who know less. Filth and the neglect of cities are largely to blame for the successful march of disease. Given, the necessary atmospheric conditions, in times of epidemic, clean cities and towns are scarcely touched.

HOW DOES YELLOW FEVER SPREAD?

By a direct introduction of its specific poison or germs. The ablest writers state that cholera never has appeared in any place until after the appearance of an infected individual or merchandise. The same argument can be applied to yellow fever. From its cradle, in the West Indies, it was taken to the Isthmus of Panama. There, meeting the necessary conditions, it has become a part and parcel of the isthmus. From Panama it spread up and down the west coast of South and Central America and Mexico, and now is permanently established at the very threshold of California.

Now to make an application of the statements and facts already given. The Republic of Mexico joins California, about twenty miles beyond San Diego. The boundary line passes from that point the Yuma, in Arizona. About midway between San Diego and Yuma it passes within twenty miles of the head of the Gulf of California. Lower California is a vast peninsula. Geographically it should be a part of California. The City of Guaymas, in the State of Sonora, Mexico, is connected by the Sonora Railway with Nogales, Arizona. Practically the Sonora Railway is part of the Southern

Pacific Railway. The time from San Francisco, California, to Guaymas, is about fifty hours by rail. From Guaymas to the hot plains of Arizona but a few hours.

The City of Mazatlan, the headquarters of the disease on the Gulf of California, is but six days from San Francisco by steamer. Two lines of steamers place it in direct communication with San Francisco. San Francisco, likewise, is in direct communication with Panama, and the whole coast of Central America and Mexico. Small coasters, steam and sail, ply between the Mexican ports on the main land and the peninsula, or Lower California, the City of Guaymas being a receiving and distributing point for passengers and freight to and from the United States. Having shown the direct communication between Mexico and California, let us consider

THE MEXICAN EPIDEMIC OF EIGHTEEN HUNDRED AND EIGHTY-THREE.

The Mexican authorities laid the blame on the Pacific Mail Steamship Company, and dated the epidemic from the landing of the body of Purser Wafer, who died en route from Panama. The authorities were wrong in this. That the disease originally came from Panama is historic, *but for several years previous to 1883, sporadic cases of yellow fever had appeared from time to time. No precautions were taken—absolutely none. In August, 1883, the filth and necessary atmospheric conditions being present, and the sine qua non of all epidemics—food—in the shape of an unacclimated people and new arrivals, there was a grand explosion of the disease.*

The Peralta Opera Company had just landed. Peralta, the prima donna, and seventeen members died in the Hotel Iturbide in Mazatlan. The epidemic there lasted from August to December, killing fully five hundred. When the disease first appeared, Mazatlan had an estimated population of fifteen thousand. Thousands left for the mountains of the interior. The epidemic over, many returned to contract the disease and die. The experience of the medical men in Mazatlan was identical with that of physicians at Panama, and showed that natives from the lofty mountains of the interior were swept away like "chaff before the wind." A scientific expedition en route from the City of Mexico—elevation eight thousand feet above sea level—was cut off in Mazatlan, but one or two escaping.

I spent three weeks in Mazatlan in June and July last year, and learned that after the epidemic of 1883, and the reappearance of the disease in 1884, that no attempts were made to disinfect bedding or apartments. An American, Mr. Dowe, of San Francisco, chaffed me about having the apartments in the Iturbide where Peralta died, and I replied by saying that I had taken all the upper degrees in yellow fever at Panama. His room was near mine, and within a week he was down with it. All the hotels used as such in 1883, 1884, and 1885 are infected buildings. In July and August, 1885, it killed many in Mazatlan.*

From Mazatlan it spread inland and upland to Rosario, a mining town seventy miles inland, killing many and leaving the disease endemic. A death had been caused by it just previous to my visit in July, 1885.

There is not the slightest doubt in my mind regarding the endemicity of this disease along the west coast of Mexico and many inland towns. Pray note that the disease reached Rosario by stage, taken by fleeing individuals. *It is not necessary that they should be infected; they are carriers.* Another illustration that the germ must be introduced.

While the epidemic was doing its work at Mazatlan and inland, the small steamers in the gulf made their usual trips. Late in August the steamship "Newbern" landed a lot of passengers from Mazatlan at La Paz, Lower California. Seemingly they were in excellent health, but soon after one of them sickened at an hotel in La Paz. The proprietor became alarmed and had him removed. The man died. In a few days new cases were reported, and almost at once it was epidemic. There was a grand explosion of the disease. La Paz has a mixed population of some two thousand. The village padre, or priest, told me that at one time during the height of the epidemic fully one thousand people were down. La Paz is a very hot place, but is well supplied with good drinking water. It is built on a sand bank on the edge of the gulf. Owing to its favorable position, only seventy-one died.

---

* El Diario de la Tarde, Mazatlan, July and August, 1885.

Again a steamer figures. She cleared from La Paz for Guaymas, where the disease soon appeared. Guaymas is almost a land-locked port. There many fell victims to it. Many Americans were swept away. A number of cases appeared in 1884. From Guaymas it was taken inland by the Sonora Railway to Hermosillo, where it became epidemic. Many Mexicans fled to Arizona. My brother, the late Dr. George W. Nelson, was in Tucson in 1884, and while there learned that several cases had reached it from Mexico. This chronicles an important fact—the invasion of Arizona by the disease. Very fortunately the disease did not spread.

A few words about Guaymas. It is a small city, very hot and without drainage. It stands at the end of a long arm of the sea. Its harbor, practically, is land-locked, and there can be but little change in its waters. Old-time privies poison the soil. The bay receives the filth of the houses. I also consider it an infected locality for the reasons already adduced. Further, owing to its peculiar position, it may become a second Havana, both as to the importance of its trade and its yellow fever. I make this forecast and will leave the proof to time.

While in La Paz, Lower California, I received valuable information about the epidemic of 1883, and a case in 1884, from Mr. Viosco, the United States Consul. In Guaymas, Dr. Figuroa, the Health Officer, gave me valuable information regarding its invasion of that city in 1883, and of several cases in 1884. The greatest mortality was among foreigners. Last August (1885) yellow fever again appeared in Guaymas, a fact duly communicated by United States Consul Williard to the Board of Health of the State of California. Last Summer, during June and July, I visited all of the principal ports on the west coast of Mexico, being those of San Blas, Manzanillo, Acapulco off Tonala, and San Benito; to these must be added Mazatlan, La Paz, Lower California, and Guaymas, on the main land.

Yellow fever reached San Blas, the first port south of Mazatlan, by schooner, vessel carrying fleeing people from Mazatlan; a case appeared, then the usual explosion took place, and the disease was epidemic. The first case appeared September twenty-third; the epidemic lasted until November. I traced its history with care.

San Blas is built on a narrow neck of sand. It has the sea in front and lagoons nearly all around it. The vegetation is rank and luxuriant. The place is low, very hot, and notoriously unhealthy. During the epidemic of 1883, the sick were deserted by their relatives, and were left to die. Bodies remained unburied for days together. A reign of terror seized on its unfortunate people, the majority fleeing for very life to the interior. Disinfection is unknown. It goes without saying that the yellow fever poison is there "to stay." Give it food—newcomers—and it will be faithful to its traditions.

The next port to the south is Manzanillo, whose reputation as a pestilential center surpasses that of San Blas. The town faces the sea: back of it is an immense lagoon covering many miles. During the dry season its waters evaporate and leave it nearly dry. After a full dose of quinine, I visited it at noon. A cloud of vapor arose from its surface: a hot and sickening odor. Vessels many miles off that port have had its vapors reach them, causing sickness among the crew. Yellow fever swept it in 1883. From Manzanillo the disease swept or spread inland and upland, reaching the City of Colima, on a lofty tableland. Colima, for several centuries previously, had a historic reputation for healthfulness. It was considered the spot *par excellence* on this continent for consumptives. Yellow fever became epidemic, killing many and sweeping away its reputation for health. We certainly are learning what yellow fever can do, and old theories must give way to facts.

The epidemic gave the commerce of Mazatlan a blow that it still suffers from. Many residents left it to settle in the interior. While in Mazatlan an extraordinary piece of information was given me. Just previous to the outbreak of 1883, the Chief of the Board of Health left for California for a holiday; he signed a lot of clean bills of health and left them to his *locum tenens.* The epidemic declared itself, and yet the clean bills of health were duly supplied to the outward steamers. This is a fact. I know the physician who signed them, but in justice to him, I must say there was no yellow fever when he left.

This communication deals with facts; useless theories have no place in it. It is a record of personal observations in part, and of facts collected from wholly reliable people, in the centers named. The whole collected under circumstances that to me seemed favorable for the acquisition of such knowledge and information. It is cheerfully placed at the disposal of the Board of Health of the State of California as a record of six years study of the disease and its history.

To repeat, I have dwelt at great length on the condition of affairs on the west coast of Mexico, it being the immediate neighbor of California. *The yellow fever poison is a standing menace to Arizona and California. The west coast of Mexico is permanently infected.* How can it be otherwise while infected hotels receive travelers, and all sanitary precautions are unknown, save in name? To illustrate this: as soon as Mr. Dowe was convalescent, I strongly urged the then proprietor of the Hotel Iturbide in Mazatlan, to thoroughly disinfect the bedding and apartment occupied by Mr. Dowe. He listened to all that I had to say, and, of course, did nothing. Nobody expects an infectious disease to die out under such treatment. If the Mexican authorities enact no laws, what will careless individuals do? Nothing: particularly in a Spanish-speaking center. A criminal responsibility should be fixed on such governments and individuals. An International Board of Health or Congress may handle the subject. Meantime ports, cities, and individuals are sacrificed to man's carelessness and love of gain. To-day Mazatlan and Panama produce and distribute yellow fever.

YELLOW FEVER HAS REACHED THE CITY OF SAN FRANCISCO.

Le Courrier de San Francisco, in 1883 or 1884 (I have the cutting somewhere), published an account of a jury sitting on a body in that city. While taking the evidence, it was shown that the dead man and another sick passenger had been landed by a steamer from Mexico, and that the corpse before them was that of a victim of yellow fever. *Le Courrier* graphically described how that jury retired. It was a regular *sauve qui* *peut*, or rush. I simply cite this to show that the security that San Francisco is supposed to have is fancied rather than real. Steamship owners, and passengers anxious to get on shore, will deceive quarantine authorities. I have shown that yellow fever landed in England and Wales under like circumstances led to a circumscribed epidemic, in the cool of the year, September once, and November, later. Yellow fever is a portable disease, in the broadest sense of the word.

YELLOW FEVER ON THE ISTHMUS OF PANAMA.

The Isthmus of Panama deserves special attention, as being in direct communication with San Francisco. The isthmus, truly, is an ancient hotbed of the disease, as it dates back to 1514.*

In the books of the Foreign Cemetery, kept at the British Consulate, at Panama, and for whose use I am indebted to Claude C. Mallar, Esq., H. B. M. Consul, I found the first record in English of a case of fever, thus: That of a Mr. Lemesurier, one of the Secretaries of Mr. Dawkins' Commission to the Panama Congress of 1826. Cause of death was put down as, "Fever of the country; died June fourteenth." On the fourteenth of July, 1826, or just one month later, Mr. Childers, another Secretary of the same Commission, died. Cause of death, "Yellow fever." Mr. Lemesurier's name is the first entry in the book, and Mr. Childers' the second. They fix a date. No Spanish records were available.

During the building of the Panama Railway (1849 to 1855), yellow fever swept away officers and laborers by the score. Colonel George M. Totten had the disease, and recovered. It killed his son. To form an idea of the cost of the Panama Railway in lives the reader is referred to "Panama in 1855," published by Harper Brothers, New York. The climate and its death-dealing proclivities are there described at length by an able writer, who visited the isthmus as a guest of the Panama Railway, but who returned to New York to state the exact truth.

In 1868 the disease again was epidemic on the isthmus. It killed afloat and ashore. The United States Steamer "Jamestown" lost eighty of her officers and crew, who were buried on Dead Man's Island, three miles from the City of Panama. Here let me cite an important fact regarding the resisting power of the germs of yellow fever. The "Jamestown" was sent to the North Pacific and kept there for a long time. Then she was ordered to the Sandwich Islands, when the disease again manifested itself. Several years in the North Pacific had failed to kill them.

Yellow fever has been endemic in Panama from time immemorial. In 1880 it was epidemic on the whole isthmus. During that epidemic I saw the disease in both of its cities and had it myself in Panama, and was squarely told by my physician that my case "was utterly hopeless." Not very cheerful, but a fact all the same. To temperate habits, I believe, I owe my life. I was one of the happy exceptions to the rule that it kills nearly all cases at Panama.

Between May and September in that year the Colombian troops in the Panama garrison lost one hundred and eighty men and camp followers, smallpox and yellow fever both being epidemic.

Previous to two years ago, all the soldiers and poor, or the great majority, were buried in a small lot of less than an acre. Year by year it was dug up and over for new arrivals, to liberate millions of germs. Jointly with Mr. John Stiven we made a vigorous protest through the columns of the

---

* Report of National Board of Health, 1879, and Macaulay's History of England.

Star and Herald, in English and Spanish, against the wholesale dissemination of disease. That put a stop to an abuse that had gone on, year by year, for over half a century.

The better classes were buried in niches or *bovedas*, in a large quadrangle of masonry; the niches were in tiers. After a given time, eighteen months, if the rent were not renewed, the coffins were cast out, broken, etc. As many as sixty-seven coffins were seen at one time, open and closed, disclosing fearful sights. It was a capital place to collect crania, as the Museum of McGill College, Montreal, testifies, but regarding how they got there clearly "it is not for me to say."

Next, to the advent of De Lessep's canal engineers, on the twenty-eighth of February, 1881. That meant a lot of new food. Within a year, yellow fever was claiming victims among them. From the epidemic of 1880, it remained endo-epidemic. In 1882, between July and September, fifteen deaths occurred from yellow fever in the Canal Hospitals, in Colon, a fact duly communicated by me to the National Board of Health at Washington. The then United States Consul, Mr. James Thorington, issued clean bills of health at a time when the President of the State Board of Health of Panama, Dr. Quijano Wallis, pronounced it, and smallpox endemic.

In September, 1884, the harbor of Colon was full of shipping. The latter became infected, the "Effecthia," a brig, lost all her crew but the cook. Two French steamers of *La Compagnie Generale Transatlantique*, named the "M. Bixio," and the "Fournel," lost twenty men. The Royal Mail Steamers "Larne," and "Nile," also lost a few between September and January, 1885. One hundred and seventy cases had occurred there, with a mortality of over two thirds. I saw the records when in Colon, in February, 1885. I visited Colon purposely to see things for myself. An English ship, the "City of Liverpool," had had six cases on board. She was at the dock, within twenty feet of her stern was a large pile of rock-ballast from Bohio Soldado, being that sold by the Panama Railway to all vessels requiring it. The "Grace Bradley," an American three-masted schooner, was in the berth next to the "City of Liverpool." She had discharged a cargo of ice, and was taking in the ballast. Two of her crew sickened with the disease and died. She sailed for a southern port, United States of America, with a foul bill of health from United States Consul, R. K. Wright, Jr., of Colon. She arrived at a southern port late in the Fall, discharged the ballast on flat cars that dumped it into the sea, and proceeded direct to Philadelphia. This infected ballast some day will speak louder than words to the people of the South. It comes from an infected port. Ballast of this kind caused three cases of yellow fever in New Orleans, in 1882. The ballast was thrown on a street there.*

Another fact for students of yellow fever. In 1881 a vessel called "La Renie des Anges," made Colon. She had yellow fever on board. Later, the canal company bought her for a coal hulk. When the epidemic appeared in the shipping of Colon in 1884, she was hauled into the dock and discharged her coal, and was made an hospital ship for yellow fever victims. After the epidemic was over, she was disinfected (a wooden ship) and again became a coal hulk, to be anchored in the midst of the shipping. In February, 1885, I saw her in the thick of the shipping in that crowded port. That vessel is a standing menace to the shipping of Colon.

I left Panama on the twenty-fifth of April, 1885, for New York, and was in the isthmus again in February and April of this year, when I again sailed on the twelfth of April for New York, via New Orleans. During my absence from the isthmus yellow fever had not been idle. Many would have termed it epidemic. In January, 1886, out of one hundred and forty-nine burials for Panama in the general cemetery, twenty-two were from yellow fever. February, one hundred and sixty-three burials, thirty-five from yellow fever. March, one hundred and ninety-nine burials, forty-three from yellow fever. Apart from these, there were the burials in the Chinese, Foreign, and Jewish Cemeteries, many being from yellow fever.

---

* "Yellow fever in Vera Cruz, and Colon, in 1882." New Orleans Medical and Surgical Journal, 1884.

There were many cases both in Colon and Panama, when I sailed. In December, 1885, thirty deaths from it, all Americans, were registered at the American Consulate at Colon. In March, 1886, fifteen canal men died of it in the Colon Hospital. A late letter from a gentleman in Colon refers to the great sickness on the isthmus, the death of Mr. Boyer, the Director-General of the canal works in Panama, and many prominent men, all from yellow fever. Colon was spoken of thus: "People were dying in the streets." Cause not stated. They were "dumped into the grave, unlettered, unnumbered, and unknown."

In May and June last it was declared epidemic at Panama, Dr. Amador Guerrero, the *Doyen* of the Colombian physicians in Panama having so pronounced it. In May the *New York Herald* placed the daily dying from it at forty. Subsequently the *Herald* confirmed its first statement by saying that forty a day was an underestimate. In June I met a merchant from Panama, then in New York. He said that on a certain Sunday previous to his leaving the City of Panama he had counted thirteen funerals pass his place of business, "all foreigners and all yellow fever."

There was a great deal of sickness and death this and last year among the Colombian soldiers. The *Star and Herald* this Spring gave on its Spanish side the figures furnished it by Dr. Quijano Wallis, the military surgeon and President of the Board of Health of the State of Panama. The deaths in the last half of 1885 was about fifteen per centum of all admissions to the military hospital. Later it rose to twenty-two per centum; that was during the early months of 1886, the chief causes being yellow and malarial fevers and dysentery.

In July, 1884, the *Star and Herald*, on its English side, when the health of the isthmus was good—for it—published the death rate among the canal men as being one hundred and nine per thousand. A canal surgeon furnished the figures. In November, 1884 (remember the epidemic in the harbor of Colon), the Canal Company buried six hundred and fifty-two officers and men from all causes. From this it will be seen that the Isthmus of Panama is not the garden of paradise that Mons. de Lesseps represents it to be in his *Bulletin du Canal Interoceanique.*

While the details are lengthy, they are necessary to place the truth squarely on record, with a view of transfixing the fictions of canal managers *et al.*

During my residence at Panama, a number of foreign physicians in practice tried to bring about a different state of affairs. Letters were written to the press. While the attempt exposed the situation and its dangers, no good came of it. A series of letters were published in the *Star and Herald* by George E. Gascoigne, M.D.M.R.C.S., England, Benjamin Stamers, L.R.C.P. and S., Edinburgh, and the writer.

PANAMA OF TO-DAY.

Now to place the City of Panama before the reader. The old City of *Panama Viego*, lies about four miles southwest of modern Panama. Old Panama was destroyed in 1670 by Morgan. It is the oldest city in the three Americas. Modern Panama was built in 1688 as a strongly walled city. The walls in many places remain in excellent condition. They cost $11,000,000. The city is built on a peninsula of volcanic rock, jutting out into the Bay of Panama. The Spaniards were grand builders and selected excellent sites.

The visitor to Panama of to-day, the city being the Pacific terminus of the Panama Railway, will find the main *plazas* or squares cleanly swept; also many of the streets. I refer to the city proper, or what was intramural Panama. The inhabitants, whose houses have no water-closets, save and except perhaps twenty in the city with a population of twenty thousand, throw all the refuse of the houses and fœcal matter over the seawalls, where it accumulates above the reach of the tides. The heaps are abominations, and their death-dealing odors are unbearable. Heat and moisture are never absent to aid fermentation of fœcal matters. These accumulations "that smell unto heaven" have been described time and again by the *Star and Herald*, but nothing results. That paper has paid for its experience in common with others. Mr. James Boyd, its late proprietor, died of malignant smallpox in 1881, and Mr. Hugh Boyd, likewise a pressman, died last Summer of yellow fever.

Panama has a few old time drains, also a few badly constructed modern ones. The city has no waterworks, or any means of flushing them. Many of the old drains have become choked up. They are simply storehouses for fermenting fœcal matters in the dry season. During the rains they overflow to flood the streets. The vile odors that pour from the gratings in the streets, and *patios* or yards, are pestilential and disease producing.

The Isthmus of Panama was happily named "The Gate to the Pacific," by Captain, now Admiral, Bedford Pim, R. N. There is a city almost two hundred years old, on one of the world's greatest highways, without water and without drainage. Panama to-day receives her water from a few old time wells on the outskirts. Three of the largest from which the watermen get their supply, are at Cocoa Grove. They are in a small ravine, within two hundred feet of a new cemetery, and fully forty feet below its level. Within two years, or between July 15, 1884, and April 12, 1886, that cemetery had received three thousand eight hundred and eighty-four bodies buried in the earth; and several hundred had been placed in the stone niches or *bovedas*. Just beyond this cemetery is the Chinese Cemetery, and opposite is the old cemetery and *bovedas* already referred to, as well as the Jewish Cemetery and the Foreign Cemetery; all lying between the city and the base of Mount Aucon.

At the time the new cemetery was being got ready, the writer visited it with Mr. Felix Target, C.E., a member of the Institute of Civil Engineers of Great Britain, and hydraulic engineer to the Government of Jamaica. The wells were condemned by him, and publicly denounced through the columns of the *Star and Herald* and *La Estrella de Panama*. They, and the old system of burying and unburying the dead, were vigorously treated. Señor Damaso Cervera, the President of the State of Panama, through the President of the Board of Health, said that they should be closed when the cemetery opened. The cemetery and wells are under one management. Don Nicanos Obarrio, who has a Government contract for burying the dead, a royalty so to speak, for all the cemeteries, he owns the wells; they drain the cemeteries: he sells the water; thus the one is furnishing victims for the other to this day and hour. People use the cemetery drainage for drinking purposes, and yet, strange to say, Panama remains unhealthy!!! It is a paradise for physicians, if they can escape dying themselves.

Next in order, let us consider the suburbs and outskirts of the city, or extra-mural Panama. The poorer classes throw all refuse into vacant lots, old wells, and into the streets. Piles of filth, unmentionable, may be seen on main thoroughfares. Near the gasworks there are several slaughter houses; two kept clean, one for pigs is filthy and odoriferous to a degree. The slaughter houses are within two hundred yards of the city proper. The entrails from the cattle are thrown down the bank, also their heads, to poison the atmosphere. Oftentimes, large masses of intestines are floated by the tides and left stranded by them at low water along the city front. Such is Panama to-day.

Mr. Leblanc, an old timer, told Mons. de Lesseps, during his first visit to Panama, in 1880, that if he ever built a canal there, the trees of the whole isthmus would not furnish wood enough for crosses for the graves of workmen. Thousands of deaths among canal men promises to make Mons. Leblanc's statement fairly good.

Near the gasworks an old well has been filled with bedding, on which people have died. The lane running from the cemetery to the beach also presented April last a fine collection of bedding, cots, etc., with the same history, and yet some people there affect astonishment that the isthmus is unhealthy, and deny it.

Mount Aucon rises behind the city. Its highest point is five hundred and four feet above sea level. From it one looks down on Panama, on its rocky peninsula. Facing about, Rio Grande, the river, and hamlet of that name, are seen. For miles and miles swamps intersected by small streams meet the eye. The small streams bring down vegetable and animal matter from the interior and the canal camps. The swamps are partly submerged by every tide. The tides in Panama rising from sixteen to twenty-two feet, twice in twenty-four hours they are flooded; twice in twenty-four hours they are under the direct rays of a tropical sun. For intense malarial poisoning, the isthmus is famous; it is well known in the Old Country as the "Grave of the European."

COLON, THE ATLANTIC CITY OF THE ISTHMUS.

Colon, once called Aspinwall, is the Atlantic city and terminus of the Panama Railway; the distance between the two cities being about forty-seven miles. Colon is built on an island of the same name. The island is of a coralline formation: it is about a mile long, by about a third of a mile in width. Its center is made up largely of lagoons, swamps, and clumps of mangroves; the whole mixed with a luxuriant tropical vegetation.

I walked around the island last April. On the beach back of the city there was an immense collection of refuse, bedding, a few dead animals, etc.

The Island of Colon has no drainage; its surface being only three or four feet above the ocean. The rise of the tides is very small, only some sixteen inches. A large and foul lagoon occupies a prominent place in the very heart of the city. It is built over and around, and receives filth of all kinds, including privies. It has no outlet; it is foul, its waters are green, and death dealing.

Many of the back streets were flooded, a foul, green water covering them, on whose surface breaking bubbles told of the fermentation going on below. Many of the streets were flooded from sidewalk to sidewalk, planks connecting them. The inhabitants on them, nearly all natives and Jamaicans, throw all the refuse, etc., of their houses out of the first door or window that offers, and add to the perpetual nastiness.

The great fire of March 31, 1885, that swept Colon, exposed the numberless privies and pits, whose contents have poisoned the whole subsoil and the porous coralline formation. Colon to-day is nearly rebuilt, but the lagoon and the old time conditions are there, and always will be there. The presence of thousands of laborers on that small island has contaminated its whole surface. An English physician called it the "inhabited cesspool." Truly it is a malodorous spot and theme.

During the epidemic of yellow fever of 1880, Colon suffered severely; many passengers sailing from that port died en route. Both Colon and Panama are hotbeds and distributors of the disease. In 1882, a vessel named the "Ile Marthe" took on three hundred tons of Bohio Soldado rock-ballast at Colon, and cleared for New Orleans. The ballast was used for raising the level of a street. In its immediate vicinity yellow fever appeared at once, and three cases died.* While the "Ile Marthe" was at Colon, there were many cases of yellow fever. Between May and September, 1882,† the Canal Hospital there reported twenty-nine cases and nineteen deaths, Dr. de Courval being in charge. Dr. Homer Hitchcock, the Resident Surgeon to the Panama Railway, saw three cases in one vessel. In the face of all this, and of my information to the National Board of Health‡ that there were many cases of yellow fever, Mr. James Thorington, then United States Consul, gave vessels clean bills of health. The then Board of Health in New Orleans accepted his views, and in its report,§ published seven pages of letters to show that there was no yellow fever at Colon up to October, 1882. Dr. Joseph Jones, then its President, wrote to Dr. Quijano Wallis, the President of the Board of Health of the State of Panama, for his opinion, and, strange to say, published his reply *in extenso, but in the original Spanish*, and in summing up the report, made it say in English, what it never stated in Spanish—thus: "From the preceding courteous and valuable communication of President Quijano Wallis, it is evident that during the Spring, Summer, and Autumn, up to the thirteenth of October (1882), the actual sanitary condition of the ports of Panama and Colon was good, and that they were free from such epidemics and contagious diseases as smallpox and yellow fever.

In addition to willfully perverting the truth, the then Board of Health of Louisiana denied that the ballast came from Colon, stating that it came from Cardenas, Wales.§ Now for the real facts of the case. What my friend, Dr. Quijano Wallis, then and now President of the Board of Health of Panama, really said at the close of his letter of date October 13, 1882, to President Jones, translates thus: "The actual sanitary condition of the ports of Panama and Colon is, generally speaking, good, as there does not prevail at present any of the usual epidemic diseases, it being a well known fact that smallpox, yellow fever, and the malarial fevers in their numerous varieties and forms, are never missing in these inter-tropical regions where they are truly endemic."

As stated, the Board of Health declared that the ballast of the "Ile

---

* New Orleans Medical and Surgical Journal, 1884.

† Annual Report National Board of Health, Washington.

‡ New Orleans Medical and Surgical Journal, January, 1884.

§ Annual Report Board of Health, State of Louisiana, 1882.

Marthe" had been taken on board at Cardenas, Wales. The following certificate was obtained by me, in duplicate, one copy being sent to Dr. Stanford E. Chaillè, a member of the National Board of Health of New Orleans, and was published by him.* This clears up the origin of her ballast; it came from Bohio Soldado, on the line of the Panama Railway.

CONSULATE OF THE UNITED STATES OF AMERICA,
AT COLON, February 28, 1885.

May 27, 1882, ship "Ile Marthe," three hundred tons of ballast, at $2 50, $750.

I, the undersigned Consul of the United States of American for Colon and the dependencies thereof, do hereby certify that the above extract is a true and faithful copy of an original entry in the books of the Panama Railroad Company, the same having been carefully examined and compared by me and found to agree, word for word and figure for figure.

Given under my hand and seal of this Consulate, at Colon, the twenty-eighth day of February, 1885.

[SEAL.]

R. K. WRIGHT, JR.,
U. S. Consul, Colon.

The facts just cited are very instructive, as showing how a Board may betray the interests it is paid to protect.

The Board of Health of the State of Louisiana, since 1884, has been under the very able management of Dr. Joseph Holt.

New Orleans has had her experience with the Colon rock ballast. Now it is all thoroughly disinfected, and has been since I placed the exact facts before Dr. Holt.

The people of the State of Louisiana, and of the South, may be congratulated on the Louisiana Board of Health. It gives the City of New Orleans, and the South generally, the maximum of protection, and commerce and shipping the extreme minimum of detention, a single day in many cases. Its quarantine is truly the ideal quarantine long sought, and is the creation of Dr. Joseph Holt, the President of the Board. But for its watchfulness several ships from the isthmus, now at Quarantine Island with yellow fever on board, would probably have set up an epidemic in New Orleans. The 1878 epidemic cost the South twenty-two thousand lives.

Acting Surgeon-General Stone, of the Marine Hospital, Washington, in his recent report of the nineteenth of August, referred to vessels now in quarantine, and said that there was no danger of the disease spreading; and there is none, if the isolation is real and absolute. The upright methods and truthfulness of the Board of Health of Louisiana commands the admiration of all sanitarians, and the country at large.

That Board will guard the Atlantic at Louisiana, and now that there is all rail communication between it and California, it has a direct bearing on the question of "Yellow Fever in its Relation to the State of California."

Enough has been placed before the reader to illustrate what risks all ports and cities run that are in communication with Colon and Panama, and the west and east coasts of Mexico. California's greatest danger is from the Pacific, from Guaymas, Mexico, by rail, and the steamers from the coast to San Francisco.

CALIFORNIA HAS A MAGNIFICENT CLIMATE.

Two visits to it, one in 1880, and the second in 1885, gave me ample evidence of it. Climate is not everything, and pure air is not necessarily germicidal. Did the climate of California shut out cholera? It did not.

---

*New Orleans Medical and Surgical Journal, 1884.

From New York, a steamer took the disease to the Isthmus of Panama. It became epidemic. The Seventh United States Infantry was on the isthmus, en route to California, in 1852, Captain U. S. Grant was with them, and states* that fully one seventh of that regiment (the Seventh) were killed by it.

Later, vessels en route to California left the disease at every port they touched at in Central America and Mexico. The Republic of Nicaragua, with a small population of two hundred and ten thousand, lost eighteen thousand. The Republic of Guatemala was severely punished. While there, in 1885, Mr. Urruella told me about its appearance in the City of Amititlan, where five thousand died in a population of forty thousand. It got up into lofty mountains, and did its fatal work, La Antigua, six thousand feet above sea level, suffering severely.

California, on the coast, has fogs and "muggy weather." A recent writer on England, says, that it has "plenty of weather, but no climate." Let us say, that both climates are equally cool, and unfriendly to the diseases of hot climates, properly so called. Yet, as has been shown, yellow fever was introduced into England, and developed two circumscribed epidemics.

France claims a fine climate, yet yellow fever was epidemic at Saint Nazaire.† These facts, familiar to all students of yellow fever, are cited to cause unthinking people to awake to the situation. Let Californians remember the experience of her neighbor, Mexico, within whose borders yellow fever is permanently domiciled. Remember Colona, with her past magnificent reputation for health, and her fearful punishment by yellow fever. Climate *quoad* Science if you will, climate is not everything.

During my visits to California I traveled in its southern and central portions. In the Sacramento Valley I saw many things that recalled the tropics. Heat, moisture, swamps, etc. *I wish to state here boldly, and with all the emphasis that our mother tongue conveys to an intelligent mind, that if yellow fever is introduced here during the hot months, that it will be true to its traditions and pile up a fearful record.* Again, let skeptical and careless people remember Mexican experience. Mazatlan, a charming city by the sea, lost fully one third of her population by their moving away, and her commerce probably never will assume its former proportions.

Here I must close this lengthy communication. "Forewarned is forearmed." The people of the State of California have a Board of Health, presided over by men of recognized wisdom and ability. They have the skill; they have the scientific knowledge. Let the State give them the necessary power and means, to enable its Board to stand "shoulder to shoulder" with that of Louisiana. Then, but not until then, the Golden State can bid defiance to the diseases knocking at her portals, and menacing her people, commerce, and her grand and deserved reputation for healthfulness, and a climate that is unequaled.

---

* Grant's Memoirs, vol. 1.

† Le Fievre Jaune á Saint Nazaire.

DISINFECTION AND INDIVIDUAL PROPHYLAXIS AGAINST INFECTIOUS DISEASES.

By George M. Sternberg, M.D., Major and Surgeon U. S. Army.

[This essay is copyrighted, and now republished by the kind permission of Dr. Irving A. Watson, Secretary of American Public Health Association.]

INTRODUCTION.

Definition.—We are met at the outset by a difficulty growing out of the fact that the word *disinfection*, as commonly used, has a very different signification from that to which certain recent authors would restrict it. Thus, the Committee on Disinfectants of the American Public Health Association defines a disinfectant as "an agent capable of destroying the infective power of infectious material."* In the preliminary report of this committee the reasons for restricting the meaning of the word within the limits justified by its etymology, and of our knowledge of the nature of "infectious material," are very clearly stated, as follows:

> The object of disinfection is to prevent the extension of infectious diseases by destroying the specific infectious material which gives rise to them. This is accomplished by the use of disinfectants.
>
> There can be no partial disinfection of such material; either its infecting power is destroyed, or it is not. In the latter case there is a failure to disinfect. Nor can there be any disinfection in the absence of infectious material. * * * * * *
>
> Popularly, the term disinfection is used in a much broader sense. Any chemical agent which destroys or masks bad odors, or which arrests putrefactive decomposition, is spoken of as a disinfectant. And in the absence of any infectious disease it is common to speak of disinfecting a foul cesspool, or a bad smelling stable, or a privy vault.
>
> This popular use of the term has led to much misapprehension, and the agents which have been found to destroy bad odors—deodorizers—or to arrest putrefactive decomposition—antiseptics—have been confidently recommended and extensively used for the destruction of disease germs in the excreta of patients with cholera, typhoid fever, etc.
>
> The injurious consequences which are likely to result from such misapprehension and misuse of the word disinfectant will be appreciated when it is known that recent researches have demonstrated that many of the agents which have been found useful as deodorizers, or as antiseptics, are entirely without value for the destruction of disease germs.
>
> This is true, for example, as regards the sulphate of iron or copperas, a salt which has been extensively used with the idea that it is a valuable disinfectant. As a matter of fact, sulphate of iron in saturated solution does not destroy the vitality of disease germs, or the infecting power of material containing them. This salt is, nevertheless, a very valuable antiseptic, and its low price makes it one of the most available agents for the arrest of putrefactive decomposition in privy vaults, etc.
>
> Antiseptic agents also exercise a restraining influence upon the development of disease germs, and their use during epidemics is to be recommended when masses of organic material in the vicinity of human habitations cannot be completely destroyed, or removed, or disinfected.
>
> While an antiseptic agent is not necessarily a disinfectant, all disinfectants are antiseptics; for putrefactive decomposition is due to the development of "germs" of the same class as that to which disease germs belong, and the agents which destroy the latter also destroy the bacteria of putrefaction, when brought in contact with them in sufficient quantity, or restrain their development when present in smaller amounts.

---

* *The Medical News*, Philadelphia, January 24, 1885, p. 87.

A large number of the proprietary "disinfectants" so called, which are in the market, are simply deodorizers or antiseptics of greater or less value, and are entirely untrustworthy for disinfecting purposes.*

The offensive gases given off from decomposing organic material are no doubt injurious to health; and the same is true, even to a greater extent, of the more complex products known as *ptomaines*, which are a product of the vital—physiological—processes attending the growth of the bacteria of putrefaction and allied organisms. It is therefore desirable that these products should be destroyed; and, as a matter of fact, they are neutralized by some of the agents which we recognize as disinfectants, in accordance with the strict definition of the term. But they are also neutralized by other agents—deodorants—which cannot be relied upon for disinfecting purposes, and by disinfectants, properly so called, in amounts inadequate for the accomplishment of disinfection. Their formation may also be prevented by the use of *antiseptics*. From our point of view the destruction of sulphureted hydrogen, of ammonia, or even of the more poisonous ptomaines, in a privy vault, is no more disinfection than is the chemical decomposition of the same substances in a chemist's laboratory. The same is true as regards all of the bad smelling and little known products of decomposition. None of these are "infectious material," in the sense in which we use these words; that is, they do not, so far as we know, give rise *directly* to any infectious disease. Indirectly they are concerned in the extension of the epidemic "filth diseases," such as cholera and yellow fever, and of the fatal endemic "filth diseases," such as typhoid fever and diphtheria, which in the long run claim more victims than do the pestilential maladies first named. This because persons exposed to the foul emanations from sewers, privy vaults, and other receptacles of filth, have their vital resisting power lowered by the continued respiration of an atmosphere contaminated with these poisonous gases, and are liable to become the victims of any infectious disease to which they may be exposed. Moreover, the accumulations of filth which give off these offensive gases furnish pabulum upon which certain disease germs thrive; and it may happen that the bad smelling air carries something worse than the poisonous gas which makes its presence known by offending the sense of smell. It may waft to our nostrils infectious particles which are beyond recognition by any sense, unless it be the sense of sight with the aid of a good microscope.

We desire, moreover, to have it fully understood that in restricting the meaning of the term disinfection within the limits given by the definition of the Committee on Disinfectants of the American Public Health Association, we do not wish to limit the practice of "disinfection," in the popular sense of the word.

It is but fair to say, also, that this popular usage is supported by good authority, and until quite recently has been the common acceptation of the term among physicians and chemists. Indeed, it is but a short time since the nose test was the only test of "disinfection" recognized by many intelligent persons.

Littré, in his Dictionary of the French Language, defines disinfectants as "substances which destroy, chemically, bad odors."

Vallin, the author of the best modern treatise upon "Disinfection and Disinfectants," says:

> From a scientific point of view there is perhaps an impropriety in introducing into the idea of disinfection the suppression of odors which offend the sense of smell. The bad odor is not injurious in itself; it is an epiphenomenon, which does not necessarily give

---

* *The Medical News,* April 18, p. 425.

> the measure of the hurtful properties of the air, or of any substance whatever. The public, unacquainted with medicine, has an unfortunate tendency to judge of insalubrity by the bad odor; the absence of this gives to it a deceitful security; when they are masked by any device, it [the public] believes that all danger has been removed. *Nevertheless it is necessary to avoid violating the ordinary sense of words.*[*] An atmosphere which does not in the least offend the sense of smell may certainly be insalubrious, and engender the gravest maladies; but the fetid or disagreeable odors may reveal the presence of injurious principles, of toxic gases, or of organic matter in decomposition. We should not too much diminish the importance of these offensive odors in the eyes of the public; everything which smells badly is to be suspected.[†]

We agree with Professor Vallin, that the bad odors should arouse suspicion, and lead to the use of deodorants, or of antiseptics, or of disinfectants, if required; but let us not leave the public to suppose that when the bad odors have been neutralized, the offensive material has been disinfected. Let us rather instruct the public that to deodorize and to disinfect are not one and the same thing, and that deodorant and disinfectant are not synonymous terms. For our part we prefer to "violate the ordinary sense" of the word, and to restrict its signification within such limits as will prevent confusion, and, what is far worse, a reliance upon inefficient methods for the destruction of infectious material.

In the present essay we shall use the words disinfection and disinfectant, in accordance with the definition of the committee on disinfectants already given. But, inasmuch as this is intended to be a practical treatise for popular use, we shall also give, in the proper place, directions for the use of deodorants and of antiseptics, so that "disinfection," in the broad sense in which the word is commonly used, may be fully considered.

Tests of Disinfection.—What means have we of proving that the infective power of infectious material has been destroyed?

Evidence of disinfection may be obtained *(a)* from the practical experiments—experience—of those engaged in sanitary work; *(b)* by inoculation experiments upon susceptible animals; *(c)* by experiments made directly upon known disease germs.

(a) It is a matter of common experience, that when a room has been occupied by a patient with an infectious disease, such as smallpox, scarlet fever, or diphtheria, susceptible persons are liable to contract the disease weeks or even months after the patient has been removed from it, unless in the meantime it has been disinfected. If a second case does occur from exposure in such a room, it is evident that it has not been disinfected. But the non-occurrence of subsequent cases cannot always be taken as evidence that the means of disinfection resorted to were efficient. Negative evidence should be received with great caution. In the first place, the question as to whether susceptible individuals have been fairly exposed in the disinfected room must be considered. Then it must be remembered that susceptible persons do not always contract a disease, even when they are exposed in a locality known to be infected. A further difficulty in estimating the value of evidence obtained in practice arises from the fact, that, in connection with the special means of disinfection resorted to, such as fumigation, hanging up cloths saturated with a disinfecting solution, etc., it is customary to resort to additional precautionary measures, such as washing surfaces with soap and hot water, whitewashing plastered walls, and free ventilation. It is apparent that under these circumstances it would be unsafe to accept the fact, that no other cases occurred in a room treated in this way, as evidence that the particular disinfectant used is efficient for the destruction of the infectious agent of the disease in question. The fond mother who

---

[*] Italics by present writer.

[†] Op. cit., p. 2.

attaches a charm to her child's neck to protect it from evil, also takes the precaution of guarding it from contact with other children who are sick with any infectious disease. If her child fortunately grows to manhood or womanhood without having suffered an attack of scarlet fever or diphtheria, she may imagine that her charm has protected it, but the evidence upon which her faith is founded is not of a nature to convince those who are familiar with scientific methods of demonstration. "Well educated" persons are often ready to testify in favor of methods of disinfection, or of treatment, upon evidence which, from a scientific point of view, has no more value than that which the fond mother in question has to offer in favor of the little bag containing camphor or assafœtida, or some other charm of equal value, which she has attached to her child's neck to keep it from catching scarlet fever or diphtheria at school. On a par with these charms, so far as disinfection is concerned, we may place the saucer of chloride of lime, which it was formerly the fashion to place under the bed of a patient sick with an infectious disease, the rag saturated with carbolic acid, or chloride of zinc, suspended in the sick-room, and even the fumigations with burning sulphur, as sometimes practiced by those who are unfamiliar with the evidence as to the exact value of this agent, and the conditions necessary to ensure successful disinfection with it.

Chloride of lime, sulphurous acid gas, and carbolic acid are among our most useful disinfecting agents, but disease germs are not to be charmed away by them any more than by a little bag of camphor.

Having pointed out the fact that negative evidence, in a restricted field of observation, must be accepted with great caution in estimating the value of disinfectants, we hasten to say that the combined experience of sanitarians, derived from practical efforts to restrict the extension of infectious diseases, is of the greatest value, and that this experience is to a great extent in accord with the results of exact experiments made in the laboratory.

(b) Inoculation experiments upon susceptible animals, made directly with infectious material which has been subjected to the action of a disinfectant, have been made by numerous observers. The proof of disinfection in this case is failure to produce the characteristic symptoms which result from inoculation with similar material not disinfected. Thus, Davaine found that the blood of an animal just dead from the disease known by English writers as anthrax or splenic fever (Fr. *Charbon*), inoculated into a healthy rabbit or Guinea pig, in the smallest quantity, infallibly produces death within two or three days; and the blood of these animals will again infect and cause the death of others, and so on indefinitely. This anthrax blood therefore was infectious material, which could be utilized for experiments relating to the comparative value of disinfectants. Davaine made many such experiments, not only with the blood of anthrax, but also with that of a fatal form of septicæmia in rabbits, which is known by his name. Other investigators have followed up these experiments upon infectious material of the same kind, and also upon material from other sources—*e. g.*, the infectious material of glanders, of tuberculosis, of symptomatic anthrax, of fowl cholera, of swine plague, etc.

It has been proved that the infectious agent in all of the diseases mentioned is a living germ, and that disinfection consists in destroying the vitality of this germ. But in experiments made with blood or other material obtained directly from diseased animals, the results would be just as definite and satisfactory if we were still ignorant as to the exact nature of the infecting agent. The test shows the destruction of infecting power without any reference to the cause of the special virulence, which is demonstrated to be neutralized by certain chemical agents in a given amount. All of the experiments made with the above mentioned kinds of virus have been made upon the lower animals; but there is one kind of material which it is justifiable to use upon man himself, and with which numerous experiments of a very satisfactory character have been made. This material is vaccine virus. Fresh vaccine, when inoculated into the arm of an unvaccinated person, gives rise to a very characteristic result—the vaccine vesicle. The inference seems justified that any agent which will neutralize the specific infecting power of this material will also neutralize the small-pox virus. Thus far it has not been definitely proved that the infective agent in vaccine virus is a living germ; but the numerous experiments made have shown that the chemical agents, which have the power of destroying the various kinds of infectious material heretofore mentioned, have also the power, in about the same amounts, of neutralizing vaccine virus, as shown by its failure to produce any result when inoculated into an unvaccinated person. In these experiments the more careful investigators have taken the precaution of vaccinating the same person with disinfected and with non-disinfected virus from the same source. A successful vaccination with the non-disinfected virus shows that the individual is susceptible, and the material good; failure to produce any result is evidence that the potency of the disinfected virus has been destroyed by the chemical agent to which it was exposed.

(c) As already stated, it has been demonstrated that the infectious diseases of the lower animals, which have furnished the material for experiments upon disinfectants by the method of inoculation, are "germ diseases," and that the infectious agent is in each case a living micro-organism, belonging to the class known under the general name of *Bacteria*. The bacteria are vegetable organisms, which, by reason of their minute size and simple organization, must be placed at the very foot of the scale of living things. But they make up in number and in rapidity of development for their minute size; and there is good reason for believing that the infectious diseases of man are also caused by pathogenic—disease-producing—organisms of the same class. Indeed, this has already been proved for some of these diseases, and the evidence as regards several others is so convincing as to leave very little room for doubt.

Many of these disease germs are now known to us, not only by microscopic examination of the blood and tissues of infected animals, but also by "culture experiments." That is, we are able to cultivate them artificially in suitable media, and to study their mode of development, etc., in the laboratory, quite independently of the animals from which our "pure cultures" were obtained in the first instance. The culture fluids used are prepared from the flesh of various animals; and when to one of these a certain quantity of gelatine is added, we have a "solid culture medium," upon the surface of which some of these germs will grow most luxuriantly. To start such a "culture," it is only necessary to transfer, with proper precautions, a minute quantity of the infectious material to the surface of our culture medium, or into a fluid which has been found to be suitable for the growth of the particular organism which we desire to cultivate. A second culture is in the same way started from the first, and so on indefinitely.

Now it is evident that these "pure cultures" furnish us a ready means for testing the power of various chemical agents to destroy the vitality of known disease germs, as shown by their failure to grow in a suitable culture medium after exposure for a given time to a given percentage of the disinfectant. Very many experiments of this nature have been made during the past three or four years. The reader who desires fuller details as to the method of conducting such experiments, and of the results obtained, is referred to the preliminary reports of the Committee on Disinfectants, of the American Public Health Association, published during the current year (1885) in the *Medical News*, Philadelphia, and which will, doubtless, also be published in full in the next annual volume of the association. We may say here that the experimental data on record indicate that those agents which are efficient for the destruction of any one of the pathogenic organisms upon which experiments have been made, or of harmless species of the same class—*e. g.*, tne bacteria of putrefaction—are efficient for the destruction of all, *in the absence of spores.* There is, it is true, within certain limits, a difference in the resisting power of different organisms of this class to chemical agents. This is not, however, sufficiently marked to prevent the general statement that *a disinfectant for one is a disinfectant for all, in the absence of spores.*

The last clause of the above statement calls for an explanation, and certain details with reference to the mode of reproduction of disease germs. All of the bacteria multiply by binary division; that is, one individual divides into two, and each member of the pair again into two, and so on. The spherical bacteria, known as *micrococci*, multiply only in this way, but the rod-shaped bacteria, or *bacilli*, also form spores. These spores correspond with the seeds of higher plants. They are highly refractive, oval or spherical bodies, which, under certain circumstances, make their appearance in the interior of the rods, which cease to multiply by binary division when spore formation has taken place. The point of special interest with reference to these spores is, that they have a resisting power to heat, and to the action of chemical disinfectants, far beyond that which is possessed by micrococci, or by bacilli without spores. The difference may be compared to the difference between a tender plant and its seeds to deleterious influences, such as extremes of heat and cold. Thus the spores of certain species of bacilli withstand a boiling temperature for several hours, while a temperature of 150° Fahrenheit quickly kills most bacteria in the absence of spores. A similar difference is shown as regards the action of chemical agents. Certain agents—*e. g.*, sulphurous acid gas and carbolic acid—which are extensively used as disinfectants, have been proved by exact experiments to be quite impotent for the destruction of spores. This being the case, it is advisable, in practical disinfection, always to use an agent which has the power of destroying spores, in those cases in which the exact nature of the disease germ has not been demonstrated. The cholera germ of Koch does not form spores; and there is good reason to believe that the same is true as regards the germs of yellow fever, of scarlet fever, and of smallpox, which have not yet been demonstrated. This inference is based upon evidence obtained in the practical use of disinfectants, and upon certain facts relating to the propagation of these diseases.

A second general statement, which is justified by the experimental evidence on record, is that *agents which kill bacteria in a certain amount, prevent their multiplication in culture fluids, when present in quantities considerably less than are required to completely destroy vitality.*

An agent, therefore, which, in a certain proportion and in a given time, acts as a "germicide" in a smaller quantity, may act as an *antiseptic*—*i. e.*, may prevent putrefactive decomposition by restraining the development of the bacteria of putrefaction. Antiseptics also prevent or retard the development of pathogenic bacteria. It follows from this that germicides are also antiseptics; but the reverse of this proposition is not true, as a general statement, for all antiseptics are not germicides. Thus alcohol, common salt, sulphate of iron, and many other substances which are extensively used as antiseptics, have scarcely any germicide power, even in concentrated solutions, and, consequently, would be entirely unreliable as disinfectants.

Practically, antiseptics may accomplish the same result in the long run as we obtain in a short time by the use of disinfectants. If, for example, we prevent the development of the germs of cholera, or of typhoid fever, in an infected privy vault, by the continued use of antiseptics, these germs will in time lose their ability to grow, when introduced into a suitable culture medium. But in the meantime there is always the possibility that some of them may escape, with the fluid contents of the vault, into the surrounding soil, and contaminate some well or stream from which drinking water is obtained. For this reason privy vaults, cesspools, and sewers should never be allowed to become infected. All infectious material, such as the dejections of patients with cholera or typhoid fever, should be destroyed at its source, in the sick room; or, if it is ascertained that such material has been thrown into a privy vault, the entire contents of the vault should be promptly disinfected. The same rule applies to infectious material thrown upon the ground, or wherever it may be.

Finally, we desire to emphasize the following propositions:

Disinfection consists in extinguishing the spark, killing the germ, which may light up an epidemic in the presence of a supply of combustible material—filth.

The object of *general sanitary police* is to remove this combustible material out of the way, so that no harm may result even if the spark be introduced.

Antiseptics and deodorants are useful when it is impracticable to remove offensive organic material from the vicinity of human habitations, but they are a poor substitute for cleanliness.

PART FIRST.

Disinfection.

It will be our aim in the present chapter to give reliable, practical directions with reference to the use of disinfectants, and the best methods of disinfection. Keeping this object in view, we shall recommend for disinfecting purposes only those agents named in the following list:

Group 1.

Disinfectants which have the power of destroying spores:

1. Fire.
2. Steam under pressure (25 ℔s.).
3. Boiling water.
4. Chloride of lime (in solution).
5. Liquor sodæ chlorinatæ.
6. Mercuric chloride (in solution).

Group 2.

Disinfectants which are effective in the absence of spores:

7. Dry heat (230° Fahr. for two hours).
8. Sulphur dioxide.
9. Carbolic acid.
10. Sulphate of copper (in solution).
11. Chloride of zinc (in solution).

NOTE.—In the present state of knowledge, a division of disinfecting agents into two groups becomes necessary, unless we would entirely dispense with the use of those agents named in our second group, which cannot be relied upon for the destruction of spores, and consequently cannot be recommended for the destruction of all kinds of infectious material. As this group includes several agents which are extensively used for disinfecting purposes, and which we believe to possess great practical value, we have considered it necessary to make this distinction. The present state of science, however, does not enable us to classify all infectious diseases in the same way, and in case of doubt it will always be advisable to use those agents included in Group 1. But in the absence of a precise knowledge of the nature of the germ, we may in certain cases be governed by the practical experience of sanitarians, and by experiments which have been made directly upon infectious material, *e. g.*, on vaccine virus. In our recommendations we have taken account of this kind of evidence, as well as of laboratory experiments, in which known disease germs or harmless organisms of the same class have served as the test of disinfecting power.

We shall first give a brief account of the conditions of successful disinfection with these agents, as established by experimental data, and afterward detailed directions for their employment under the various circumstances in which disinfection is required.

1. Fire.—It is hardly necessary to say that burning of infectious material, infected clothing, etc., is an effectual method of disposing of it. This method of disinfection is always to be recommended, when practicable or consistent with a due regard for economy and the rights of individuals. As a rule, articles of little value, which have been soiled with infectious material, had better be burned; and this is especially true of old clothing and bedding. But we have other efficient methods of disinfection, which make it unnecessary to sacrifice articles of value except under unusual circumstances.

2. Steam under Pressure.—The disinfecting power of steam given off from boiling water in an open vessel does not differ from that of the water itself, but confined steam has a temperature corresponding with the pressure as indicated by a steam gauge. At twenty pounds pressure the temperature is about 230° Fahr. (105° C.); at twenty-five pounds it is about 240° Fahr.; at thirty pounds it is 250° Fahr. Moist heat at the lowest temperature named destroys the most resistant spores in twenty minutes, while a temperature of 240° Fahr. is effective almost immediately.*

3. Boiling.—In the absence of spores, bacteria are quickly killed at a temperature considerably below the boiling point of water, and it is safe to say that boiling for half an hour will destroy all known disease germs, including the spores of anthrax, which have less resisting power than the spores of certain harmless and widely distributed bacilli, which have been found to resist boiling for several hours.

4. Chloride of Lime (chlorinated lime, bleaching powder).—This is one of the cheapest and most efficient of disinfectants. It should be packed in air-tight and moisture-proof receptacles—glass is preferable—and should contain at least twenty-five per cent of available chlorine.† It should be used in solution, which had better be made as required. An insoluble residue will be left, which may be removed by filtration or decantation. This, however, is not at all necessary. Chlorinated lime owes its disinfecting power to the presence of the hypo-chlorite of lime, a salt which is freely soluble in water, and which is quickly decomposed by contact with organic matter. Germs of all kinds, including the most resistant spores, are destroyed by this solution, but it must be remembered that the disinfectant itself is quickly decomposed and destroyed by contact with organic matter, and that if this is present in excess, disinfection may not be accomplished, especially when the germs are embedded in masses of material which are left after the hypo-chlorite of lime has all been exhausted in the solution.

---

* See Preliminary Report of Committee on Disinfectants, in *The Medical News*, Philadelphia, March 14, 1885, p. 284.

† The test for available chlorine is given in Preliminary Report No. 11 of the Committee on Disinfectants, l. c., Jan. 7, p. 148.

5. *Liquor Sodæ Chlorinatæ* (Labarraque's solution).—This is a solution of the hypo-chlorite of soda. Its value as a disinfectant corresponds with that of solutions of hypo-chlorite of lime of the same strength. The preparations in the market vary greatly in value, and some of those tested by the committee on disinfectants* were found to be practically without value. This is due to the fact that the solution does not keep well. For this reason, and on the score of economy, a solution of chloride of lime will be preferable for most purposes. Labarraque's solution is, however, a more pleasant preparation for bathing the surface of the body, and both as a deodorant and a disinfectant will be found useful in the sick-room. It should contain at least 3 per cent of available chlorine.

6. *Mercuric Chloride* (bichloride of mercury, corrosive sublimate.)—This salt is well known as a deadly poison, which has long been used in domestic practice as a "bug poison." Recent researches show that it has germicide powers of the first order, and it is consequently a disinfectant which may be recommended for certain purposes, due regard being had to its poisonous nature, and to the fact that it is decomposed by contact with lead, tin, or copper, and that lead pipes are soon rendered brittle and worthless by passing through them solutions of mercuric chloride. Its potency in dilute solutions (1 : 500 to 1 : 4000) makes it comparatively cheap,† and the danger of accidental poisoning from such dilute solutions is not very great. The concentrated solutions should be colored, as a precaution against accident, for they have neither color nor odor to reveal their deadly nature.

A standard solution which contains four ounces to the gallon of water, is of convenient strength for a concentrated solution, to be issued by manufacturers or health authorities, in properly labeled bottles. This may be colored with permanganate of potash,‡ or with indigo, or with aniline blue. Inasmuch as standard solution No. 2 of the committee on disinfectants is colored with the permanganate, it would perhaps be better to give this solution a blue color. The writer would suggest the following formula, in which another poisonous metallic salt contained in our list is combined with the mercuric chloride:

Bichloride of mercury	4 ounces.
Sulphate of copper	1 pound.
Water	1 gallon.

It must be remembered, in using this and other disinfecting solutions, that the condition relating to time of exposure to the action of the disinfecting agent is an important one. The experimental evidence§ relating to the germicide power of mercuric chloride, shows that the time of exposure being two hours, this salt may be safely recommended for the destruction of spore-containing infectious material in the proportion of 1:1,000, and of pathogenic organisms in the absence of spores in the proportion of 1:4,000, or even less, *provided that the micro-organisms to be destroyed are fairly exposed to its action.* The fact that mercuric chloride combines with and coagulates albuminous material, interferes to some extent with its value as a disinfectant, and will be kept in view in the recommendations to be made hereafter relating to the practical use of this agent. Mercuric chloride is an efficient antiseptic in the proportion of 1:15,000, and it exercises a restraining influence upon the development of the spores of the anthrax bacillus, when present in culture solutions, in the proportion of 1:300,000, and even less.

---

* l. c., p. 659.
† It costs about fifty cents a pound by the quantity.
‡ Ten grains to the gallon is sufficient.
§ *The Medical News*, February 21, p. 205.

7. *Dry Heat.*—Dry heat is only to be recommended for the disinfection of such articles as would be injured by exposure to moist heat, or to a disinfecting solution. A properly constructed disinfection chamber or "oven" is absolutely essential, if dry heat is to be used. The experimental evidence on record* shows that the destruction of spores requires a temperature which would injure woolen fabrics (140° C. for three hours). In the absence of spores, however, articles which are freely exposed for two hours to a temperature of 110° C. (230° Fahr.) may with safety be considered disinfected. In practice it will be necessary to remember that the penetrating power of dry heat is very slight, and that packages, bundles, or even articles loosely thrown one upon another, cannot be disinfected in this way.

8. *Sulphur Dioxide* (sulphurous acid gas).—Fumigation with burning sulphur has long been a favorite method of disinfection. The experience of sanitarians is in favor of its use, in yellow fever, smallpox, scarlet fever, diphtheria, and other diseases in which there is reason to believe that the infectious material does not contain spores. The experimental evidence on record† shows that under certain conditions it is effective for the destruction of micro-organisms in the absence of spores, but that it is quite impotent for the destruction of these reproductive elements.

The presence of moisture adds greatly to the disinfecting power of this agent. It is freely soluble in water, one volume dissolving fifty volumes of the gas. It is therefore evident that a saturated aqueous solution is fifty times as strong as the pure gas—anhydrous. In aqueous solution, in the proportion of 1:2,000 by weight, sulphur dioxide kills micrococci in two hours' time.‡ In a gas-tight receptacle it destroys the infecting power of vaccine virus dried upon ivory points, when present in the proportion of one volume per cent, the time of exposure being six hours.§ The same proportion destroys anthrax bacilli, without spores, from the spleen of an animal recently dead, dried upon silk threads, in thirty minutes (Koch). These facts show that sulphur dioxide is a valuable disinfectant; but the conditions of successful disinfection, as established by the experimental evidence, are, that the material to be disinfected shall be freely exposed to its action for a considerable time, *in a receptacle which does not permit the gas to escape.* It must be remembered that disinfection of a thin layer of vaccine virus upon an ivory point, or of anthrax blood upon a silk thread, exposed in a gas-tight receptacle, cannot be taken as evidence that thicker layers of infectious material, attached to the surface of bedding and clothing, or inclosed in folded blankets, bundles of clothing, mattresses, etc., can be disinfected by the same amount of sulphur dioxide generated in a room which is not gas-tight. It has been shown, by carefully conducted experiments,¶ that the escape of sulphurous acid gas from a bed-chamber or hospital ward is very rapid, in spite of the usual precautions for stopping up crevices when such a room is to be fumigated; and infectious material, inclosed in bundles or protected by folds of blankets, etc., may escape dis-

---

*See *Medical News*, March 14, p. 283.

†See Prelim. Rep., No. VII, *The Medical News*, March 28, p. 343.

‡l. c., p. 348.

§l. c., p. 344.

¶l. c., p. 347.

infection, after having been exposed for many hours in a tightly closed chamber containing ten volumes per cent of this gas.

9. Carbolic Acid.—The disinfecting power of carbolic acid has been fixed by experiments upon vaccine virus, and upon various pathogenic organisms. A saturated aqueous solution cannot, however, be relied upon for the destruction of spores; but in the absence of spores it is fatal to micro-organisms in the proportion of two per cent, the time of exposure being two hours. Indeed, less than one per cent is fatal to several of the species of pathogenic micrococci which have served as test organisms in the numerous experiments which have been made with this agent.* Upon the recommendation of the famous Dr. Koch, the discoverer of the cholera bacillus, the committee on disinfectants, of the International Sanitary Conference of Rome (1885), has given this agent the first place for disinfecting soiled clothing, excreta, etc., in cholera. For excreta it is to be used in five per cent solution, and for clothing, etc., in two per cent solution. The experimental evidence upon record indicates that it may be relied upon in this proportion.

10. Sulphate of Copper.—This salt has been largely used as a disinfectant in France, and recent experiments show that in the proportion of one per cent it is a reliable agent for the destruction of the micro-organisms, in the absence of spores. It is much below mercuric chloride in germicide power, but is a better deodorant—not a better antiseptic—than the more poisonous salt. When we take into account its efficiency, it is comparatively cheap, and is to be recommended for certain purposes. It may be combined with the more potent germicide, mercuric chloride, in accordance with the formula already given.

11. Chloride of Zinc.—Solutions of chloride of zinc are largely used in this country and in Europe for disinfecting purposes. It is an excellent antiseptic and deodorant, but its power to destroy disease germs has been very much over-estimated. It may, however, be relied upon for the destruction of pathogenic organisms, in the absence of spores, in solutions which contain from five to ten per cent of the salt.

GENERAL DIRECTIONS FOR DISINFECTION.

"In the sick room we have disease germs at an advantage, for we know where to find them, as well as how to kill them. Having this knowledge, not to apply it would be criminal negligence, for our efforts to restrict the extension of infectious diseases must depend largely upon the proper use of disinfectants in the sick room."†

Disinfection of Excreta, etc.—The dejections of patients suffering from an infectious disease should be disinfected before they are thrown into a water-closet or privy vault. This is especially important in cholera, typhoid fever, yellow fever, and other diseases in which there is evidence that the infectious agent is capable of self-multiplication, in suitable pabulum, external to the human body. Vomited matters, and the sputa of patients, with these and other infectious diseases, should also be promptly disinfected. This is especially important in cholera, diphtheria, scarlet fever, whooping-cough, and tuberculosis. It seems advisable, also, to treat the urine of patients sick with an infectious disease with a disinfecting solution.

For the disinfection of excreta, etc., in the sick-room, a solution of chloride of lime is to be recommended. This is an excellent and prompt deodorant, as well as a disinfectant. A quart of the standard solution (No. 1), recommended by the Committee on Disinfectants of the American Public Health Association, will suffice for an ordinary liquid discharge in cholera or typhoid fever; but for a copious discharge it will be prudent to use twice this quantity, and for solid fœcal matter a stronger solution will be required. As chloride of lime is quite cheap, it will be best to keep on the safe side, and to make the solution for the disinfection of excreta by dissolving eight ounces of chlorine of lime in a gallon of water. The solution should be placed in the vessel before it receives the discharge. The material to be disinfected should be well mixed with the disinfecting solution by agitating the vessel, and from thirty minutes to an hour should be allowed for the action of the disinfectant, before the contents are thrown into a water-closet or privy vault.

---

* Prelim. Rep. of Com. on Disinfectants, No. VI, l. c., p. 317.

† Prelim. Rep. of Com. on Disinfectants of A. P. H. A.

Standard Solution No. 2, of the committee on disinfectants, which contains two drachms of corrosive sublimate and two drachms of permanganate of potash to the gallon of water, if used freely—one quart for each dejection—and left in contact with the material to be disinfected for at least four hours, is a reliable disinfectant *for liquid discharges.* The caution with reference to lead pipes must be remembered, and if this solution is used in the sick-room, or in hospital wards, it will be desirable to have receptacles of wood or earthenware for the disinfected material, which may be carried away and emptied in a suitable locality once in twenty-four hours.

The blue solution heretofore suggested would also be suitable for use in the same way, and with the same precautions. It contains four ounces of corrosive sublimate and a pound of sulphate of copper to the gallon of water. This concentrated solution should be diluted in the proportion of eight ounces to the gallon of water, and the diluted solution used as heretofore recommended—at least a quart for each dejection, and four hours' time. The disinfecting power of the copper salt adds to the value of this solution, and the bright blue color of the concentrated solution leaves nothing to be desired in the way of a color protection against accidental poisoning.

For the disinfection of the discharges of cholera patients, a five per cent solution of carbolic acid may be used in accordance with the recommendation of the International Sanitary Conference of Rome. The time necessary to insure disinfection is fixed at four hours.

Chloride of zinc in ten per cent solution may be used for the dejections of cholera patients, the same conditions being observed in regard to quantity and time of exposure as were fixed for the other metallic salts named.

It will be best to burn cloths used to wipe away the discharges of the sick, and especially those used in wiping away the infectious material from the mouth and nostrils of patients with diphtheria or scarlet fever. Bits of old muslin may be used for this purpose, and should at once be thrown upon an open fire or gas stove arranged in the fireplace for this purpose.

Infected sputum may be discharged directly into a cup half full of the solution of chloride of lime recommended for excreta, or of Labarraque's solution.

Handkerchiefs, napkins, and towels used in wiping away infectious discharges, if worth preserving, should be at once immersed in one of the following solutions: Chloride of lime, 2 per cent; carbolic acid, 2 per cent; mercuric chloride, 0.1 per cent (= 1 : 1,000).

The blue solution (containing sulphate of copper), diluted in the proportion of four ounces to the gallon of water, may also be used for this purpose.

Cloths used for washing the general surface of the body should also be disinfected with one of the above mentioned solutions; and attendants should invariably disinfect their hands by washing them in one of these solutions, when they have been soiled by the discharges of the sick.

Disinfection of the Person.—Labarraque's solution, diluted with twenty parts of water, is a suitable disinfecting solution for bathing the entire surface of the body of the sick, of convalescents, or of those whose duties take them into the sick-room; or a 1 per cent solution of chloride of lime, or a 2 per cent solution of carbolic acid, may be used.

The International Sanitary Conference of Rome gives the following directions with reference to the disinfection of the body after death from cholera:

"The body should be enveloped in a sheet saturated with one of the strong disinfecting solutions,* without previous washing, and should at once be placed in a coffin."

We see no objection to washing the body, if the strong solution of chloride of lime is used for this purpose. Washing with water would necessitate the careful disinfection of the water and cloths used for this purpose, and of the hands of the attendants. As the odor of chlorine or of carbolic acid would be objectionable under certain circumstances, we see no good reason for insisting upon the use of these agents, rather than on the odorless solution of mercuric chloride, which, in the proportion of 1 : 1,000, would no doubt be equally effective. But when there is an odor of decomposition to be neutralized, the solution of chloride of lime will have a decided advantage on account of its deodorizing properties.

Disinfection of Clothing and Bedding.—The cheapest and best way of disinfecting clothing and bedding, which is not injured by the ordinary operations of the laundry, is to immerse it in boiling water for half an hour or longer. It should be placed in boiling water as soon as removed from the person or the bed of the sick, and if it is necessary to remove the articles from the room in order to accomplish this, they should be wrapped in a sheet or towel thoroughly saturated with a disinfecting solution. If it is impracticable to disinfect such infected clothing and bedding *immediately* by boiling, it will be necessary to immerse it in one of the following disinfecting solutions, in which it should be left for four hours: Mercuric chloride, 1 : 2,000; or the "blue solution" of this salt and sulphate of copper, diluted by adding two fluid ounces of the concentrated solution to a gallon of water; or a 2 per cent solution of carbolic acid. The solution of chlorinated lime (2 per cent) may also be used, but we give the precedence to the first mentioned solutions, because of the bleaching properties of this solution. The blue solution does not injure clothing, and is to be preferred for domestic use to a simple solution of corrosive sublimate, which in the concentrated form is highly poisonous, and without odor or color. When diluted as directed, this solution may, however, be used without danger either from absorption through the hands, or by drinking. The metallic taste of the diluted solution could scarcely fail to prevent a fatal dose from being swallowed accidentally.

For outer clothing, and other articles which would be seriously injured by immersion in boiling water, the best disinfectant is *steam.* Exposure to steam at 100° C. (212° Fahr.) for half an hour would be equivalent to exposure in boiling water for the same time, if the clothing is hung up in such a manner as to be fairly brought under the action of the disinfecting agent. To be certain that the steam does not fall below this temperature in the disinfection chamber, a thermometer must be placed in a corner of the room, at a distance from the point of entrance of the steam, or in an aperture from which the steam escapes. This should mark at least 100° C. for half an hour before the disinfection can be considered complete.* To accomplish this, it is evident that the steam must come from the generator at a higher temperature, or, in other words, must be under pressure.

---

* Chloride of lime 4 per cent, or carbolic acid 5 per cent.

It must be remembered that the destruction of spores is the most difficult test of disinfecting power known, and one which excludes the use of carbolic acid, sulphur dioxide, and other agents which enjoy the confidence of sanitarians, and which have been proved by laboratory experiments to destroy pathogenic organisms in the absence of spores. There is good reason for the belief that *dry heat* and *sulphurous acid gas* may be safely substituted for steam for the disinfection of the clothing of patients with cholera, yellow fever, and smallpox, and probably in several other infectious diseases (puerperal fever, erysipelas, diphtheria (?), and scarlet fever (?).

As disinfection by steam will injure certain articles, *dry heat* may be used as a substitute for moist heat, but in this case a temperature of at least 110° C. (230° Fahr.), maintained for two hours, will be required. In the use of dry heat, even greater care is necessary that the articles to be disinfected are freely exposed—that is, not placed in the oven in bundles, or piled one upon another, but freely suspended in the disinfecting chamber. For it has been shown by carefully conducted experiments that the penetrating power of dry heat is very slight. A properly constructed disinfection oven, such as that of Ransom,† will be required if dry heat is to be used.

As the appliances for disinfecting with steam or with dry heat are somewhat expensive, these agents are not likely to supplant, for general use, the time honored practice of fumigation with sulphurous acid gas. This method of disinfection commends itself because of the cheapness of the material used, and the facility of its application. Sulphur dioxide is a less reliable disinfectant than steam or dry heat, but when the necessary conditions are observed there is no doubt of its utility; and the fact that it does not kill the spores of anthrax, and of other bacilli, is no reason for rejecting an agent which has been demonstrated by experience to be one of great value, which has been proved by laboratory experiments to be fatal to pathogenic organisms in the absence of spores, and to destroy the infecting power of vaccine virus. But in using this agent the conditions of successful disinfection, which have been established by experiment, should be borne in mind. The room which is to serve as a disinfecting chamber must be very thoroughly closed; every crevice and keyhole should be carefully stopped with cotton, or by fastening paper over it. Even this precaution will not prevent the rapid escape of gas from cracks around doors, windows, etc. It is therefore desirable, when practicable, to use a disinfecting chamber which can be hermetically closed. The articles to be disinfected must be very freely exposed, and should never be thrown into the room in bundles, or piled one upon another. We concur in the recommendations of the committee on disinfectants of the American Public Health Association, as to the amount of sulphur which should be burned, and the method of effecting its complete combustion:

---

* The committee on disinfectants of the International Sanitary Conference of Rome fixes one hour as the time during which steam should be made to pass over the articles to be disinfected.

† *British Medical Journal*, Sept. 6, 1873, p. 274.

To secure any result of value, it will be necessary to close the apartment to be disinfected as completely as possible, by stopping all apertures through which gas may escape, and to burn at least three pounds of sulphur for each thousand cubic feet of air-space in the room. To secure complete combustion of the sulphur, it should be placed, in powder or in small fragments, in a shallow iron pan, which should be set upon a couple of bricks in a tub partly filled with water, to guard against fire. The sulphur should be thoroughly moistened with alcohol before igniting it.*

Finally, we would remark, that in the absence of suitable appliances for disinfection, and in general when the infected articles are of little value, consumption by fire furnishes the readiest and safest method of disposing of such articles.

For articles of value, such as upholstered furniture, etc., which would be injured by any of the processes heretofore recommended, free exposure to the air (aeration) for three or four weeks is directed by the committee on disinfectants of the International Sanitary Conference of Rome. The same committee directs that "objects made of leather, such as trunks, boots, etc., should be destroyed, or washed several times with one of the weak disinfection solutions"—carbolic acid 2 per cent, or chloride of lime 1 per cent.

The means heretofore recommended for the disinfection of woolen clothing, blankets, and similar articles will not be sufficient for soiled mattresses. As a rule, they should be opened, and the contents disinfected by steam or by dry heat, with subsequent free aeration, and the cover should be washed in boiling water after treatment with a disinfecting solution.

Disinfection of the Sick-Room.—Every effort should be made to prevent a room occupied by patients sick with an infectious disease from becoming infected. Carpets, stuffed furniture, curtains, and other articles difficult to disinfect, should be removed at the outset. Indeed, nothing should be left in the room which is not absolutely required, and all furniture and utensils should be of such a character that they can be readily disinfected by washing with boiling water or with a disinfecting solution. Abundant ventilation and scrupulous cleanliness should be maintained, and a disinfecting solution should always be at hand for washing the floor, or articles in use, the moment they are soiled by infectious discharges. For this purpose a solution of chloride of lime may be used (4 per cent).

It is impracticable to destroy infectious material in an *occupied* apartment by means of gases or volatile disinfectants, for to be effective these must be used in a degree of concentration which would make the atmosphere of a room quite irrespirable. These agents are therefore useful only as deodorants. They are all more or less offensive to the sick, and will seldom be required, even as deodorants, when proper attention is paid to cleanliness and ventilation.

Daily wiping of all surfaces—floors, walls, and furniture—with a cloth wet with a disinfecting solution, is to be recommended. For this purpose a solution of chloride of lime (2 per cent), or of carbolic acid (2 per cent), or of mercuric chloride (1 : 2,000), may be used.

By such precautions as have been indicated, the infection of the sick-room may be prevented, especially in those diseases, such as cholera and typhoid fever, in which the infectious agent is not given off in the breath, or from the general surface of the body, of the sick person. In smallpox and in scarlet fever there is greater danger that the infectious agent may remain attached to surfaces in the room; for the atmosphere becomes infected with particles given off from the surface of the patient's body.

As already stated, the atmosphere cannot be disinfected while the room is occupied. There is much less reason for disinfecting it when the patient has been removed, and it is much simpler to renew it by throwing open the doors and windows than to attempt to disinfect it. Indeed, there will be no infectious particles to destroy, except such as are dislodged from surfaces, window ledges, etc., where they have settled as dust while the room was occupied; and if the precautions above recommended have been taken, the danger of such reinfection of the atmosphere will be reduced to a minimum.

---

* Preliminary Report, l. c., p. 427.

Disinfection of the vacated room, then, consists in the destruction of all infectious particles which remain attached to surfaces, or lodged in crevices, in interstices of textile fabrics, etc. The object in view may be accomplished by thorough washing with one of the disinfecting solutions heretofore recommended; but most sanitarians think it advisable, first, to fumigate the room with sulphur dioxide. This practice is to be recommended, and the directions given by the Committee on Disinfectants, already quoted, should be followed (3 ℔s. of sulphur to 1,000 cubic feet of air space). At the end of from twelve to twenty-four hours, doors and windows should be opened, and the room freely ventilated. After this fumigation, all surfaces should be washed with a disinfecting solution (chloride of lime 2 per cent, carbolic acid 2 per cent, or mercuric chloride 1 : 1,000), and afterwards thoroughly scrubbed with soap and hot water. Plastered walls should be whitewashed. The fumigation recommended is especially important in the case of rooms, the walls of which are covered with paper, and in rooms from which curtains, carpets, etc., have not been removed; and under these circumstances it will, as a rule, be advisable to repeat the fumigation a second or even a third time. The process is inexpensive, and the old saying that "Whatever is worth doing at all is worth doing well," applies with especial force to the use of disinfectants. Excessive precaution can do no harm, but the inefficient use of disinfecting agents, which results from indifference, or from ignorance of the precise value of the agents relied upon, may be disastrous.

Disinfection of Privy Vaults, Cesspools, etc.—The contents of privy vaults and cesspools should never be allowed to accumulate unduly, or to become offensive. By frequent removal, and by the liberal use of antiseptics, such necessary receptacles of filth should be kept in a sanitary condition. The absorbent deodorants, such as dry earth, or pounded charcoal—or the chemical deodorants and antiseptics, such as chloride of zinc, sulphate of iron, etc.—will, under ordinary circumstances, prevent such places from becoming offensive. Disinfection will only be required when it is known, or suspected, that infectious material, such as the dejections of patients with cholera, yellow fever, or typhoid fever, has been thrown into the receptacles, which are especially dangerous, because they already contain pabulum suitable for the development of the germs of these diseases. Mercuric chloride commends itself especially for the disinfection of such masses of material, because, even if any germs escape immediate destruction, they will fail to multiply in the presence of this potent antiseptic. The chloride of lime solution, on the contrary, is preferable for use in the sick-room, because of the promptness and certainty of its germicide action and its deodorizing power. But it has the disadvantage, where large masses of material are to be disinfected, that it is itself destroyed by contact with organic matter; and that if there is a surplus of infectious material after the disinfecting solution has been neutralized, this will be as potent for mischief as a larger quantity would have been.

Mercuric chloride should be used *in solution*, in the proportion of "one pound for every five hundred pounds—estimated—of fecal matter contained in the vault.[*] All exposed portions of the vault, and the woodwork above it, should be thoroughly washed down with the disinfecting solution.[†]

The subsequent daily use of a smaller quantity of the same solution would insure the continued disinfection of fresh material thrown into the vault: or chloride of lime in powder may be freely scattered over the contents after the first disinfection with mercuric chloride. A diluted powder, made by mixing one pound of chloride of lime with nine pounds of plaster of Paris, or of clean, well dried sand, may be used for this purpose. This is more easily spread about, can be used more economically, and is sufficiently strong in chlorine for practical purposes. As chloride of lime is an excellent deodorant, as well as a disinfectant, such a powder commends itself for general use in open privy vaults and cesspools, not only during the prevalence of epidemics, but at all times when they give evidence of being in an unsanitary condition.

Hospitals.—The directions already given in regard to disinfection of the sick-room and its contents apply as well to hospital wards in which patients with infectious diseases are treated. In addition to this, it will be necessary in hospitals to guard against such infectious diseases as erysipelas, septicæmia, puerperal fever, and hospital gangrene. The antiseptic treatment of wounds, in connection with a proper regard for cleanliness and ventilation, has practically banished these diseases from well regulated hospitals. Of the first importance in effecting this are the precautions now taken with reference to the disinfection of sponges, instruments, the hands of attendants, etc.

Instruments of silver, such as probes and catheters, may be disinfected by passing them through the flame of an alcohol lamp. Instruments of steel, gum catheters, etc., may be disinfected by immersion in a five per cent solution of carbolic acid, or in a 1:1,000 solution of mercuric chloride. For instruments and vessels of copper, brass, and tin, boiling water, or the carbolic acid solution, may be used. Vessels of porcelain, or glass, may be disinfected by heat, or by either of the disinfecting solutions mentioned. Sponges should be kept permanently in one of the disinfecting solutions, or, what is better, may be dispensed with entirely for the cleansing of wounds. In place of them, irrigation with a disinfecting solution may be resorted to, or the discharges may be wiped away with some cheap absorbent material which can be burned after having been once used.

Patients in hospitals, with infectious diseases, will, of course, be kept in isolated wards. Everything which comes from such a ward should be disinfected, and the immediate attendants of the sick should not be allowed to visit other parts of the hospital without first changing their outer clothing for a recently disinfected suit, and washing their hands in a disinfecting solution. When relieved from duty their underclothing should also be disinfected; and they should take a complete bath with one of the weak disinfecting solutions heretofore recommended.

Every hospital should be provided with a steam disinfecting apparatus, or with an oven for disinfection by dry heat.

Disinfection of Water and Articles of Food.—The disinfection of drinking water on a large scale, in reservoirs, wells, etc., is impracticable. But it is a very simple matter to disinfect water which is suspected of being contaminated with the germs of cholera, typhoid fever, or any other disease transmissible in this way. This is readily accomplished by boiling. As already stated, all known disease germs are destroyed by the boiling temperature maintained for half an hour. The importance of this precaution during the prevalence of an epidemic of cholera or of typhoid fever cannot be overestimated, when the water used for drinking purposes comes from an impure source, or is liable to contamination by the discharges of patients suffering from these diseases. Those articles of food, and especially milk, animal broths, etc., which might serve as pabulum for disease germs, should, during the prevalence of an epidemic, be cooked but a short time before they are eaten. And such food, if put aside for some hours after it has been prepared, should always be again subjected to a boiling temperature shortly before it is served. Food which gives evidence of commencing putrefaction is unfit for use, and in time of epidemics is especially dangerous.

---

[*] Recent experiments made by the writer make it apparent that the complete sterilization of large masses of fecal matter in privy vaults would be a difficult and expensive undertaking, if not entirely impracticable. It is, therefore, of prime importance that infectious material should be destroyed before it is thrown into a receptacle of this kind.

[†] Prelim. Rep. of Com. on Disinfectants, l. c.

Disinfection of Ships.—It should be the aim of a physician attached to a passenger ship, or of the master of a vessel having no physician on board, to prevent the vessel from becoming infected when in an infected port, or when cases of infectious diseases occur on board. This is to be accomplished by keeping the ship clean; by disinfecting suspected articles, and especially the soiled clothing of passengers, before they are received on board; by the isolation of cases of infectious disease which occur on board; and by the thorough execution of those measures of disinfection recommended for the sick-room. When a case of cholera or of yellow fever occurs upon a ship at sea, it cannot be taken as evidence that the vessel is infected unless at least five days have elapsed since the person attacked came on board. For he may have contracted the disease from exposure at the port of departure, or in some other locality on shore. When, however, a longer time than this has elapsed, or when several cases developed in a particular locality on shipboard, either simultaneously or successively, the vessel must be considered infected, unless it is shown that the cases are directly due to the opening of baggage containing infected clothing.

In practice, the sanitary officials at the port of arrival usually treat a vessel as infected if any cases of infectious disease have occurred upon her during the voyage. This is a safe general rule, which should not be departed from unless a considerable time—five to seven days—has elapsed since the cases occurred, and they can be clearly traced to exposure before coming on board. In this case, if the ship is clean and the precautions relating to disinfection and isolation of the sick have been faithfully executed, the health officer may be justified in dispensing with the general measures of disinfection which are required for an infected ship.

These measures do not differ from those heretofore recommended for the disinfection of the sick-room and its contents: but the special conditions on shipboard, and the great interests at stake, make it essential that the execution of these measures should be in the hands of sanitary experts.

In the disinfection of ships, fumigation with sulphurous acid gas is a measure of prime importance, and is largely practiced by those in charge of quarantine establishments. The fact that the ship may be almost hermetically closed, and the escape of gas to a great extent prevented, makes this method of disinfection more trustworthy than in the case of dwellings and hospitals. The further fact, that certain parts of the ship are inaccessible for the application of disinfecting solutions, seems to make the use of a gaseous disinfectant imperative.

Disinfection by means of steam, especially of an iron vessel, would no doubt be a difficult matter on account of the condensation which would occur from contact with the cool walls of the vessel below the water-line. But it will be well to fill the vessel with steam before introducing the sulphur dioxide; for, as already stated, the disinfecting power of this agent is much greater in presence of moisture. A well equipped quarantine establishment should have an apparatus for generating sulphurous acid gas, and injecting it into vessels, as this is the most expeditious and satisfactory method of fumigating a ship.*

An essential part of the disinfection of a ship will consist in the thorough cleansing of the bilge. The International Sanitary Conference of Rome prescribes that the bilge water shall be pumped out and replaced by sea water at least twice at each disinfection of the vessel. This is very well so far as it goes, but we would also recommend that after such cleansing, the potent disinfectant, mercuric chloride, be added to the clean sea water remaining in the bilge in the proportion of one pound to the ton of water—estimated. In the case of ships sailing from ports infected with yellow fever, it would be a wise precaution, after the cleansing of the bilge at the point of departure, to throw the same amount of mercuric chloride, dissolved in salt water, into the bilge, and to add a smaller quantity of the same solution at intervals during the voyage.

Merchandise.—Article V, of the Report of the Committee on Disinfectants of the International Sanitary Conference of Rome, says:

> V. Disinfection of merchandise and of the mails is unnecessary. (Steam under pressure is the only reliable agent for the disinfection of rags—*les chiffons en gros.*)

We think this statement too broad, especially so far as merchandise is concerned which has been on board a ship infected with yellow fever. The poison of this disease seems to be capable of self multiplication on a foul ship in tropical latitudes, quite independently of passengers and crew. And there is ample evidence that even when no case has occurred on an infected ship at sea, those who are engaged in discharging her cargo after her arrival in port may be seized with yellow fever from breathing the infected atmosphere of the hold. Evidently, merchandise conveyed on such a ship should be disinfected. But it does not seem necessary to break packages which have gone on board in good condition, and a thorough fumigation with sulphurous acid gas will be sufficient if the unbroken packages are so distributed as to be fairly exposed to the action of the disinfecting agent. To accomplish this, and to effectually disinfect the ship, it will be necessary to discharge the cargo at the quarantine station.

The collections of the rag man cannot properly be placed in the same category with other merchandise, such as agricultural products, hardware, new cotton or woolen goods, etc. An exception with regard to rags is indicated, but not stated with sufficient precision, in the article which we have quoted. There is evidence that smallpox has been not unfrequently transmitted by rags, and sanitarians are generally agreed that it would be very imprudent to admit rags collected in or shipped from localities infected with cholera or yellow fever, without first subjecting them to thorough disinfection. The only practical way of accomplishing this seems to be by means of super-heated steam. To make this effective, it will be necessary to open the bales, and spread out the rags in such a manner that they may be freely exposed to the action of the disinfecting agent, or to inject the steam under pressure into the interior of the bale through perforated metal tubes, as is practiced at the New York quarantine station.

---

* The New Orleans quarantine establishment is provided with an apparatus of this kind, which seems to be well adapted for the purpose. See paper by Dr. Joseph Holt, in the annual report of the A. P. H. A. for 1884.

PART SECOND.

Individual Prophylaxis against Infectious Diseases.

The State establishes quarantine stations, to guard against the introduction of infectious diseases of exotic origin; and in enlightened countries, sanitary officials, under the direction of the central Government, or of States and municipalities, are charged with the duty of guarding the public against such diseases. It is generally recognized that this is to be accomplished by the isolation of the sick, the use of disinfectants, and by general measures of sanitary police.

One way in which the individual may indirectly protect himself against such diseases is by using his influence to have this sanitary service placed in the hands of competent men, and in sustaining them in their efforts to exclude or stamp out infectious diseases by such measures as have been demonstrated by science and experience to be efficient for this purpose.

But this is not the kind of "individual prophylaxis" which we have to consider here. The question is: What can the individual do to protect himself and those immediately dependent upon him, under the various circumstances in which he may be placed, and especially in the presence of an epidemic?

As the advice we have to give will differ greatly according to the disease, we shall pass in review the principal infectious maladies of man, and shall attempt to give for each such practical instructions as will enable an intelligent person to take all practicable precautions for his own protection, and for that of his immediate family. We have first, however, to make some general remarks.

Infectious diseases are contracted by contact with the sick, through the medium of infected articles—"fomites"—or by exposure in infected localities.

The evident general rule of prophylaxis is, therefore, to avoid all of these sources of infection; but there are circumstances in which this is either impossible or unjustifiable. Duty calls the physician and the nurse into the sick-room, and no argument based upon self-protection can keep the devoted mother from the bedside of her sick child, or the wife from giving her personal attention to her husband, or the husband to his wife, when stricken by pestilence. Humanity requires that during an epidemic the sick shall be cared for, the dead buried, and the foul places cleansed. All this calls for the active and intelligent efforts of persons who have the courage to face danger, and not only of those who by their profession are necessarily brought in contact with the sick—physicians, clergymen, sanitary officials, nurses—but often, also, of volunteers; for, during the prevalence of an epidemic of cholera, or of yellow fever, the number of physicians and trained nurses within the infected area is commonly insufficient for the care of the sick.

The history of epidemics shows that brave men and women are to be found in every civilized country, who are willing to volunteer for such perilous duties; and also that physicians, and those whose legitimate duty it is to care for the sick, very rarely desert their post in time of danger: but the mortality among these brave men and women who stand by their guns, and among the volunteers who go to their assistance, is often very great. There is a widespread notion among people not familiar with the facts, that doctors enjoy a certain immunity from infectious diseases not possessed by other people, and that the absence of fear is a safeguard against infection. Such a supposition is without foundation, and is an insult to the brave men and women who fall at their post of duty in every epidemic. Courage is no more a protection against disease germs than against bullets. It is true, that in epidemics, as in war, the skulkers and cowards often run into danger which the men in the ranks escape. The rashness which results from ignorance or from thoughtlessness is not courage, any more than the prudence which avoids danger when there is no good reason for facing it is cowardice. Those who rashly venture within the lines drawn by an epidemic, in the pursuit of business or pleasure, on the supposition that they will escape the prevailing disease because they are "not afraid," often fall victims to their unreasoning temerity, and not infrequently beat a hasty retreat, with blanched face, when they are brought directly into the presence of the sick and the dying.

Our advice to the brave is, do not put your trust in your courage, for it is no armor against infection. Rely rather upon those precautions which science and experience indicate as best suited to the special circumstances in which you may be placed, and do not hesitate to retreat before an invisible foe, when you are not required by considerations of duty to remain upon the field of battle. If your services are not required, you are simply in the way; and if you fall ill, you add to the labors of those who devote themselves to the care of the sick. And to the timid we would say, let not your fear control your actions, but look the circumstances fairly in the face, and be guided by reason and knowledge, or by the advice of those competent to decide for you. A premature flight may bring you into ridicule, or into greater dangers than those you flee from. Do not let your fears exaggerate the facts, and weigh these in the balance of your reason, and not of your apprehensions. The fact that Judge A or Colonel B has fallen a victim to cholera or yellow fever is no more a reason for deserting your home, than is the fact that the humblest citizen of your town has died from the same disease.

If courage is no protection against infection, it cannot be denied that fear, in the presence of the infectious agent, is a predisposing cause which frequently determines an attack, and which may turn the balance in favor of a fatal result. The depressing effect of fear is well known, and all influences which reduce the vital resisting power of the individual predisposed to an attack when an epidemic is prevailing.

Other predisposing causes of a general nature are those conditions of enfeebled resistance which result from ill health, venereal, and bacchanalian excesses, etc.

Of all these, it is probable that excessive indulgence in intoxicating drinks is the most potent factor in swelling the mortality returns during the prevalence of pestilential diseases. This predisposing cause acts in several different ways. The individual whose reason is befuddled by drink, stumbles stupidly into all kinds of danger. He is "not afraid" to sleep upon the ground, exposed to the night air, when yellow fever is prevailing, or to quench his thirst with water which a prudent man would reject as unfit to drink in the presence of cholera, or to wrap himself in a blanket which has recently been in use by a patient with smallpox. Again, the debility, often attended with digestive derangement, which follows a recent debauch, constitutes a most favorable condition for the reception of the germs of cholera, of yellow fever, and of infectious diseases generally. Those who use intoxicating drinks habitually, but within the limits marked by that mental aberration or loss of reason which constitutes intoxication, are less subject to infection than the man who is suffering from the effects of a recent "spree." But if they have any organic disease of the stomach, the kidneys, or the liver, as a result of their habits, this constitutes a predisposition to be attacked, and is a very serious complication when an attack is developed.

Persons suffering from chronic wasting diseases, profuse discharges, or recent hemorrhage, are especially liable to become the victims of an infectious disease during its epidemic prevalence. The same is true of those whose vital resistance is below par from insufficient food, or from the continued respiration of vitiated air, crowd poisoning, sewer-gas poisoning, etc.

In addition to the predisposing causes mentioned, which furnish indications of more or less value with reference to individual prophylaxis, there are individual and race differences in susceptibility to certain diseases manifested by those who are in perfect health. One man may be repeatedly exposed to an infectious disease without falling sick, while another may suffer several attacks of a disease, such as smallpox, in which one attack commonly confers immunity. Race differences in susceptibility are shown in the relative immunity of the negro from the effects of the yellow fever poison, and the great susceptibility of the same race to smallpox.

We shall now consider in detail the question of individual prophylaxis against certain infectious diseases, which, by reason of their fatality and occasional widespread epidemic prevalence, seem entitled to special attention in an essay of this nature.

Cholera.—In Asiatic cholera the danger of infection from association with the sick, in the capacity of nurse or physician, is very slight. This is amply demonstrated by experience. On the other hand, laundresses, who do not come directly in contact with the sick, but who handle clothing soiled by their discharges, are liable to contract the disease. By far the greater number of cases, however, result from exposure in infected localities, and from drinking infected water. Outside of the area in India where cholera prevails as an endemic disease, localities become infected and the water supply contaminated as a result of the introduction of infectious material from previously infected localities, either in fomites, or through the medium of the discharges of the sick. These facts furnish the indications for individual as well as for general measures of prophylaxis.

In the sick-room the precautions to be taken are, to keep the room clean and well ventilated, to disinfect the discharges of the sick, and all soiled articles, as promptly as possible, and to wash the hands in a disinfecting solution when they have been in contact with the patient or with soiled clothing. Attendants should not take their food in the room occupied by the sick, and should not drink liquids which have been exposed in the sick room.

The general directions relating to diet, drinking water, etc., which we shall shortly give, apply to the attendants upon the sick, as well as to those at a distance from them: and it should be remembered, in the interest of the sick, that these attendants do not run any special risks beyond those to which all persons within the area of infection are exposed. Indeed, we may go further, and say that they run far less risk when they are in a well regulated hospital, and under intelligent supervision, than do those persons who dwell in the localities outside of the hospital from which the cases under their charge have come.

Attendants upon the sick should have their meals at regular hours, should not be deprived of a fair allowance of sleep, and should never be allowed to become exhausted by protracted vigils or excessive fatigue.

When cholera has been introduced into a country, and is extending its limits from day to day, one of the first questions which will present itself to those who are able to change their place of residence will be, whether they shall attempt to keep out of its way, and if so, where it is best to go. The answer to this question must depend very much upon circumstances. Those who are unfortunate enough to live in a city or town which has a bad sanitary record, which is not provided with an efficient health department, or does not provide money to enable the officers appointed to do efficient work, had better decamp in good time, so as to evade the foe entirely, or to meet it upon a field more favorable for defensive operations. There should be no stampede, and no running away in haste, without any definite idea of why and where. The time to go is before the disease has fairly obtained a lodgment. Consider that if the season is not far advanced, and the town is in an unfavorable sanitary condition, there is every reason to anticipate that the first cases will be followed by a severe epidemic, and decide at the outset whether you will put your castle in order to stand a siege, trusting to well considered measures of individual prophylaxis, or whether you will beat a masterly retreat in advance of the first assaults of the enemy. Those who vacillate in the hope one day that the epidemic is on the decline, and in the fear the next that it will sweep everything before it, in the end very often stay, when they could just as well have gone, and at the same time neglect those precautions which they should have taken at the outset if they had decided to stay.

To those who are unable or unwilling to desert their homes, we would say, that when proper precautions are taken the danger is really not very great, and that sanitarians look for the day when cholera will be practically banished from civilized countries. See that your premises are in good sanitary condition, and do what you can to induce your neighbors and the authorities in your town to prepare for the storm. Look especially after the plumbing of your houses, and if there is a cesspool or a privy vault upon your premises, see that it is kept in good condition by the use of antiseptics and deodorants.* Above all, be sure that no food comes into your house except such as is sound and good, and that the drinking water used by your family is beyond suspicion. Well water is always open to suspicion, and in general, during the prevalence of cholera, it will be advisable to *boil all water used for drinking purposes.* This is a prophylactic measure of prime importance, and there is good reason to believe that if faithfully executed it would, to a great extent, limit the ravages of the Asiatic pestilence. Tea and coffee recently made can be taken with impunity. Milk, during the prevalence of an epidemic, should be boiled before it is used as food. Mineral waters, if bottled at places distant from the infected area, may be drunk in moderation. A moderate amount of sound wine, which was bottled prior to the epidemic, may be permitted to those who are in the habit of using it. Those not in the habit of using stimulants should not resort to their use during the progress of an epidemic. Those accustomed to them should restrict their libations within moderate limits, and will find a little brandy and soda, or Appolinaris water, to be better than wines, and especially than the acid wines, which are apt to derange the digestion.

Food should be plain and well cooked, and should be taken in moderate quantities. Intemperance in eating is quite as bad as intemperance in drinking. Soups, meats, and vegetables should always be served hot, and should not be put aside for a future repast, or, if served a second time, should be brought to the temperature of boiling water shortly before they are eaten. Pastry and rich puddings, and all coarse and indigestible meats and vegetables, are to be avoided. Sound, ripe fruit, which has been brought to the house with the outer skin unbroken, may be eaten in moderation by those who know by experience that it agrees with them. It should be carefully washed before it is eaten. Melons, cucumbers, unripe apples, peaches, or pears, acid fruits generally, and, in short, all those articles which are known to give rise to digestive derangements in the absence of cholera, would better be banished from the supply list during the prevalence of this disease.

---

* See Part First of this essay for details relating to the use of these agents.

Next to the precautions relating to food and drink, we would place those relating to personal habits and clothing. The bowels should not be allowed to become constipated, and, on the other hand, any tendency to diarrhœa should at once receive attention. This is a matter of the greatest importance, and, indeed, is second to none other in individual prophylaxis. Absolute rest, a light diet, and a dose or two of chlorodyne, or of Hope's mixture, or of any approved combination of an opiate and an astringent, will usually suffice to control a slight diarrhœa, even if it is of a choleraic character.

The clothing should be suited to the season, but great care must be taken that it is warm enough at all times to prevent the body from becoming chilled. A broad flannel belt worn about the abdomen is recommended by some physicians of experience, and may be useful. Baths should be taken at frequent intervals, but should not be too prolonged or too cold, and should be followed by a vigorous rubbing of the surface, to establish reaction. Excessive exercise and fatiguing labor of all kinds are to be avoided. One should never feel "done up," as a result of his exertions in the way of business or of pleasure, for the lassitude resulting from over-exertion, like that which results from fear, predisposes to an attack. Mental depression is, so far as possible, to be avoided: grief, despondency, and "carking care," are recognized as predisposing causes in cholera and in other infectious diseases.

The use of "sulphuric acid lemonade"—that is, of pure water acidulated with this acid and sweetened to taste—has been recommended as a prophylactic, and there is some evidence in favor of its usefulness. We would not advise its indiscriminate use, or that of any other prophylactic of this nature. When cholera has made its appearance in a dwelling or in a public institution, the inmates may be given this, to the exclusion of all other drinks.

Yellow Fever.—This disease, like cholera, is contracted in infected localities, rather than by contact with the sick. Indeed, it is rarely, if ever, communicated directly by a sick person to his attendants. In infected places the poison seems to be given off from the soil, or from collections of decomposing organic matter, and we have no definite evidence that it is communicated through the medium of food or drinking water. The history of epidemics of this disease shows that when it obtains a lodgment in a city or town which is in an insanitary condition, in southern latitudes and during the Summer months, it extends its area and invades new localities similarly situated, until frost occurs, or at least until the weather becomes comparatively cool in the Autumn. Those who remain in an infected area, unless protected by a previous attack, are almost certain to contract the disease, and much less can be done in the way of individual prophylaxis than in cholera. We therefore advise all those who can get out of the way of this fatal disease to do so. As a rule, there will be plenty of time, after there is evidence that the disease has established itself in certain parts of a city, for those who live at a little distance from these centers of infection to get away, in a deliberate and well considered manner. The occurrence of one or more imported cases cannot be taken as evidence that an epidemic will follow, and is no reason for deserting one's home. If proper precautions are taken by the sanitary authorities, it is very probable that no evil result will follow such importation of the disease. But when these imported cases are followed by the occurrence of other cases in the vicinity where they have been sick, or when such local cases occur in the vicinity of the wharves where vessels from infected ports discharge their cargoes, or in sailors' boarding houses, etc., it must be taken as evidence that the disease has effected a lodgment, and that infected centers have been established, from which an epidemic will in all probability be developed, if the season is favorable and the city in an insanitary condition.

An epidemic is not developed so rapidly as in the case of cholera, but the disease usually extends its limits in a very deliberate way, and while it is claiming its victims in one section of a city, other sections in the immediate vicinity may be quite healthy. But the territory invaded remains infected until cold weather puts an end to the epidemic. Frequently it happens that no new cases occur in an infected area for several weeks, or even months, for the simple reason that all those who remained to do battle with the pestilence have suffered an attack or are protected by a previous attack. The epidemic has ceased for want of material, but the infection remains, and will manifest itself if unprotected persons venture within the infected area from a mistaken idea that there is no more danger because there are no longer any cases.

In this disease, then, the most important point in individual prophylaxis is to keep away from infected localities, and from those places where the disease is epidemic—*e. g.*, Havana, Vera Cruz, Rio Janeiro—during the season of its prevalence. Very many lives have been sacrificed by a misplaced confidence in the protection which courage is supposed to afford against this disease. "I am not afraid," says the merchant whose business calls him to an infected city, or the sea captain who wishes to obtain a cargo of sugar in Havana during the Summer months. But not being afraid does not prevent such persons from being attacked, and the mortality at Havana among sailors from northern latitudes is very great. There is a tendency in places where the disease is endemic to underrate its malignity, and to ascribe every fatal case to some fault on the part of the unfortunate victim or his attendants. He was "frightened to death," or "was not properly nursed," or he was "imprudent," etc. The mortality is, no doubt, largely influenced by these secondary causes, but yellow fever is a malignant disease, which, under the most favorable circumstances, is very fatal to unacclimated strangers within the limits of its endemic prevalence, and which, in its epidemic extension in new territory, claims from thirty to fifty per cent, or even more, of those who fall sick, as its victims. This being the case, we repeat our advice to all those whose duty does not require them to stay on the field of battle, to make an orderly retreat to some place of safety.

The precautions relating to food and to personal habits do not differ materially from those recommended in the case of cholera. The diet should be simple, and excesses should be avoided. Less care will be necessary with reference to the use of fruits and vegetables—indeed, they are rather to be recommended as better suited than animal food to the warm latitudes in which this disease prevails. Constipation should, above all things, be avoided; and if there is evidence that the functions of the liver or kidneys are imperfectly performed, suitable medication should be resorted to.

There is no special danger from the use of water, if it is from a source which insures it from contamination with organic impurities. Spirituous liquors, if used at all, should be taken in great moderation. Nothing is more likely to develop an attack than alcoholic excesses, and the habitual drunkard is almost doomed to death if he falls sick with this disease. Exposure to the direct rays of the sun, excessive fatigue, and venereal excesses are all predisposing causes which it is within the province of individual prophylaxis to avoid. Exposure to the night air, and especially sleeping out of doors near the ground, is recognized by experienced physicians in yellow fever regions as an invitation to an attack. Great care should be taken to avoid chilling of the body, and it is well to sleep as far from the ground as possible. The creoles of Louisiana and of the West Indies generally insist upon closing the windows of a sleeping room at night.

The mortality among natives of tropical climates, and especially among those whose habits are good, and who are accustomed to a frugal mode of life, is very much less than among the natives of northern latitudes, when these come, without any previous "acclimation," within the influence of the yellow fever poison. Those who are habituated to life in the extreme South enjoy a certain immunity from the effects of the poison, which is shown by a lower death rate rather than by any exemption from being attacked. One attack of this disease, as a rule, confers immunity from a subsequent attack.

Individual prophylaxis in an infected city will include the avoidance of those localities which give special evidence of being infected, and especial care not to visit such localities at night.

The liberal use of disinfectants in cesspools and water-closets, and a perfect state of sanitary police in and around the premises, will constitute a most important part of the precautionary measures which every individual should take for his own protection and that of his family. A state of mental equilibrium, and an intelligent appreciation of the special circumstances in which he is placed, and of the various measures of prophylaxis heretofore indicated, will enable an individual to look the facts fairly in the face, and to be governed by the light of reason and of science. Unfortunately it too often happens, among the ignorant and degraded, that a spirit of bravado, attended with a neglect of the simplest sanitary precautions, and a disposition to deny the presence of the dreaded foe, prevails during the earlier stages of an epidemic, and that this is followed by a disorderly stampede and a disgraceful neglect of the sick, when the presence and malignant nature of the pestilence are recognized.

Smallpox.—This disease is contracted by exposure to emanations from the body of the sick, or from articles which have been in use by them, or exposed in their vicinity. There is no evidence that the smallpox poison multiplies external to the human body, and the indications for prophylaxis are therefore quite different from those already given for cholera and yellow fever. One may eat what he pleases, and wallow in filth, when smallpox is prevailing, without contracting the disease, so long as he keeps away from the sick, and is not brought in contact with any article infected by them. In this disease, however, as in the infectious diseases generally, previous personal habits will greatly influence the result when exposure does occur: and the disease is more fatal to the victims of alcoholism, to those who are poorly nourished, and in general, to those whose vitality is reduced by exposure to noxious effluvia from putrefying material, by living in overcrowded and ill ventilated apartments, etc.

As it is now the universal practice to isolate smallpox patients as soon as the disease is recognized, the danger of coming, accidentally, in contact with them is not great. There is but little danger of infection from passing within a few yards of a patient with smallpox in the open air, or from passing a building in which cases are under treatment. Unprotected persons who enter the sick-room are, however, extremely liable to contract the disease: and the infectious material given off from the patient's body clings most tenaciously to surfaces, to clothing, etc., and may give rise to an attack after many months, unless destroyed by disinfection.

It is evident, then, that individual prophylaxis will include the avoidance of places which have been occupied by the sick, and of articles used by them, unless there is a certainty that they have been thoroughly disinfected. It is probable that an unprotected person, who feels obliged, for special reasons, to enter the sick-room, may escape infection by the use of an air filter placed over the mouth and nostrils. This should be constructed on the principle of the "Tyndal respirator," in which all inspired air is made to pass through a layer of cotton wadding, which arrests suspended particles. It would be necessary immediately on coming out of the room to burn the cotton filter, to bathe the hands and face in a disinfecting solution, and to change the outer clothing.

It is a general rule in regard to infectious diseases that those who are necessarily exposed to them should take the precaution of not going into the sick-room with an "empty stomach," or in a condition of exhaustion from any cause. A cup of coffee, or a glass of wine and a cracker, may be taken if a considerable interval has elapsed since the last regular meal.

It is well known that against smallpox we have a special measure of prophylaxis, which has restricted the ravages of this disease within the limits which are left to it by carelessness in regard to the application of this measure, or ignorance of its value. Since the famous discovery by Jenner, vaccination has become the prophylactic *par excellence.*

The immunity conferred by vaccination is, as a rule, complete; but there are exceptions to this rule, and vaccinated persons occasionally suffer from a modified form of the disease. The statistics of the London smallpox hospital show that the mortality among unvaccinated persons received into that hospital with smallpox, is 35.55 per cent: while the mortality among vaccinated persons is less than 7 per cent. No doubt a large portion of the cases of post-vaccinal smallpox might have been prevented by revaccination.

It is now recognized that the protective influence of vaccination is not always of a permanent character, and children who have been successfully vaccinated in infancy should be revaccinated when they reach the age of puberty, or sooner, if smallpox is prevailing in the neighborhood. The operation is so trifling that it is customary to vaccinate old and young, with the exception of those who have been successfully vaccinated within a year or two, whenever an outbreak of smallpox occurs. This practice is to be recommended, but when the operation has been performed in a proper manner, with virus which is known to be reliable, it is folly to insist upon a frequent repetition of the vaccination, because "it did n't take." If the first vaccination has been completely successful, a *perfect* result from revaccination is not usually obtained; and the fact that no result is obtained must be taken as evidence that the person is protected. The prophylactic value of vaccination practiced after exposure to smallpox has been demonstrated, and one who is not entirely certain that he is protected by a recent successful vaccination will do well to resort to this important prophylactic measure at once, if he has reason to suspect that he has been exposed to smallpox.

Scarlet Fever.—In this disease, as in smallpox, the poison is given off from the bodies of the sick, and is not reproduced independently of them. As we have no knowledge of any means of protection corresponding with vaccination, prophylaxis consists solely in keeping out of the reach of infection by the sick, or by articles infected by them.

The sick person may communicate the disease during the whole period of his illness and convalescence—a period which often extends to five or six weeks, or even longer than this. Infected clothing, which has been packed away for months, may communicate the disease; and there are numerous instances on record of its transmission to children at a distance from the sick, by healthy persons who have recently come in contact with scarlet fever patients. The lower animals, and especially pet cats and dogs which may have visited the sick-room unnoticed, or which are thoughtlessly given to convalescent children for their amusement, constitute a great source of danger. Persons who have suffered an attack of the disease, or who have but little susceptibility to it, may have a slight sore throat as a result of exposure to the scarlet fever poison, and may communicate the disease in its more severe form to unprotected children. One great difficulty in arresting the progress of an epidemic by isolation of the sick and disinfection, results from the fact that these slight and often unrecognized cases are frequently allowed full liberty.

Infection has been traced to milk which had been standing in the sick-room, or to the same liquid which had become infected at a dairy where scarlet fever had prevailed, and where recent convalescents were permitted to milk the cows.

All of these facts point to a most rigid exclusion of susceptible children from every possible source of infection. The susceptibility of adults is very much less, and, when attacked, they usually have the disease in a mild form. But their responsibility extends far beyond the point of avoiding the sick for their own protection. Those who are associated with susceptible children have no right under any circumstances to visit the room of a scarlet fever patient without taking the most thorough precautions with regard to the disinfection of their person and clothing immediately upon leaving it; and even with these precautions, such a visit cannot be justified when it is made simply out of curiosity or friendship. Only those who are in attendance upon the sick should be allowed in the sick-room, and they must be regarded as infected persons, who are not to be permitted to come in contact with unprotected children while they are engaged in this duty.

Diphtheria.—This is a disease in which the infectious material is given off from the surfaces affected, and probably not from the general surface of the body. As the usual seat of the disease is the throat and the nasal mucous membrane, it is the discharges from these surfaces which are especially dangerous. Although adults are much less susceptible to the disease than children, there have been numerous instances in which they have contracted diphtheria by the accidental reception of a bit of infectious material directly into the fauces. This is especially liable to occur during the operation of tracheotomy; and several physicians have lost their lives in this way, in their efforts to save those of their patients by aspirating through the tracheotomy tube. It seems extremely probable that the diphtheritic poison—germ—is capable of increase, independently of the sick, in damp, foul places, such as sewers, damp cellars, and especially under old houses in which the floors come near the surface of the ground, leaving a damp, ill-ventilated space. At all events, the disease often clings to such houses in spite of the application of the usual means of disinfection. There is no doubt as to the influence of bad hygienic conditions in maintaining the infection when the disease has been introduced, and it is possible that such conditions may, in certain cases, originate it.

Insufficient nourishment, the malarial poison, and insanitary surroundings are predisposing causes to the disease. Those suffering from scarlet fever, measles, whooping-cough, and tuberculosis are also especially liable to be attacked. As in the case of scarlet fever, mild cases, which in the absence of others more pronounced it would be difficult to recognize as due to the diphtheritic poison, may give rise to malignant diphtheria in more susceptible individuals, or in those whose vital resisting power is reduced by any of the causes mentioned.

Prophylaxis will demand complete non-intercourse with the sick, avoidance of infected localities, and care to exclude all persons and articles coming from such houses from contact with yourself or children. The disease is often spread by thoughtless persons who visit the sick-room, and even kiss the infected patients, and then, without any precautions in the way of disinfection, fondle healthy children in other places, and perhaps transmit by a kiss the infectious material which has adhered to their lips. The possibility of transmission by pet animals is also to be borne in mind.

Tuberculosis.—Recent researches have demonstrated that tubercular consumption is an infectious disease, and that the sputa of those affected with it, injected into susceptible animals, reproduces in them the same disease. This sputum is therefore infectious material, and should be destroyed by burning, or by the use of chemical disinfectants. There would be little danger of infection from the moist masses of sputum, but in a desiccated condition this material is liable to reach the lungs of susceptible individuals, and to induce the disease.

It is well known that there is a great difference in susceptibility to pulmonary consumption, and that in certain families this disease carries off one member after another, while it is unknown in other families. Those who have this hereditary predisposition should pay special attention to individual prophylaxis. They should avoid intimate association with consumptive persons, should live under the best hygienic conditions, in dry, well ventilated apartments, and should select an occupation which will keep them in the open air, rather than one which keeps them confined to the house. Above all, they should avoid the respiration of an atmosphere loaded with organic impurities, or with irritating inorganic particles—dust of various kinds. Out of door life on the high and dry plains in the center of the continent, or in the mountains, will in most instances enable them to overcome the predisposition, if commenced before infection and the resulting tubercular lesions have occurred.

Those who are engaged in occupations which require them to pass some hours each day in an atmosphere loaded with dust will do well to wear a respirator for filtering the suspended particles from the air; for it is demonstrated that, independently of hereditary predisposition, the respiration of such an atmosphere predisposes to tubercular disease of the lungs.

Typhoid Fever.—In this disease, as in cholera, the infectious agent is contained in the alvine discharges of the sick. In the interest of self-preservation as well as in that of the public good, every individual who has charge of cases should see that the evacuations from the bowels are thoroughly disinfected before they are thrown out.

The drinking of water contaminated with such infectious discharges is recognized as a very frequent mode of infection; and individual prophylaxis demands an intelligent consideration of the source from which a supply of drinking water is obtained for personal or family use. If there is the least reason to suspect that this supply may be contaminated by typhoid material, or if it contains an undue amount of organic impurities, it should be rejected entirely, or boiled shortly before it is used.

Typhoid epidemics have in several instances been traced to using milk which had been contaminated by infected water, added to it directly, or used at the dairy to wash the vessels containing it. The remedy in this case is to verify the purity of the source of supply of all milk used for drinking, or to boil it immediately before it is used.

The water of wells located within the limits of a city or village should not, as a rule, be used for drinking purposes, for the soil is almost certain to be polluted; and it often occurs that the contents of privy vaults and cesspools pass into the same porous stratum of sand or gravel from which the well water is obtained, or that surface drainage finds its way into shallow wells. It will be necessary, also, to regard with suspicion the water of small streams and ponds which are so situated that they may receive the drainage from collections of filth upon their margin.

Next to impure water we must place impure air as a factor in the etiology of typhoid fever. There is good reason to believe that the germs of the disease may be carried by the foul gases which are given off from sewers, privies, etc., when these become infected, and that the disease may be induced by the respiration of such a contaminated atmosphere. At all events, the breathing of a vitiated atmosphere, and insanitary surroundings generally, constitute predisposing causes which should be avoided.

In typhoid fever, as in yellow fever and cholera, depressing mental emotions, such as grief, despondency, or fear, and physical exhaustion from excessive fatigue, insufficient food, etc., are predisposing causes which may induce an attack in the presence of the infectious agent.

Concluding Remarks.—This chapter might be greatly extended, but, having passed in review the principal measures of individual prophylaxis against those infectious diseases which are most fatal, we shall not dwell upon precautions to be taken in other contagious diseases, such as measles and whooping-cough. These precautions will not differ from those already recommended in the cases of smallpox and scarlet fever. So, too, in regard to the infectious skin diseases. These are communicated by personal contact, and rarely occur except among those who neglect personal cleanliness, as well as other sanitary laws. Soap and water will generally suffice for individual prophylaxis. By avoiding filthy persons as well as filthy places, the danger of contracting these and certain other unmentionable infectious diseases will be reduced to a minimum.

INDEX

TO THE

Ninth Biennial Report of the State Board of Health of California.

INDEX.

A

PAGE.

Abrams, Dr. Albert, on the prophylaxis of trichinosis 149
Abstract of proceedings of State Board 11
Advantages of registration 57
Adulteration of liquors 137
Advancing knowledge of sanitation taking place 40
Advice in presence of infectious disease 260
Ænemia, mineral springs advised for 214
Alcohol, and its influence on the human family 137
Alcohol is not a food 144
Alcohol and beer 144
Alcohol, its family 137
Alcohol, general effects on mankind 139
Alcohol, as a poison 139
Alcohol, effect on the stomach 140
Alcohol, effect on the nerves 140
Alcohol, effect on the brain 141
Alcohol, effect on the liver 141
Alcohol, effect on the heart 142
Alcohol, effect on the blood 143
Alcohol, effect on the lungs 143
Alcohol, effect on the kidneys 144
Alcohol, effect as a heat producer 145
Alcohol, effect as a strength destroyer 145
Alcohol, hereditary influence of 116
Alcohol, insanity produced by 146
American Public Health Association's transactions to be obtained 17
American Public Health Association, contribution to 22
Amendments proposed to Political Code 30
An Act to amend Political Code relating to births, marriages, and deaths 29
An Act to amend law relating to Board of Health 31
An Act to encourage and provide for a general vaccination in the State of California 32
An Act appointing State Analyst 33
An Act to establish a quarantine station at the Port of San Francisco 22
An Act requiring the signing of permit by a physician 31
Analysis of water from Sanborn Wells 78
Analysis of water from Sacramento River 78
Analysis of water from Los Angeles 79
Analysis of potable water 76
Antiseptics retard the development of bacteria 246
Antiseptics and deodorants, when useful 263
Appendix 115
Appointment of Dr. G. G. Tyrrell 11
Appointment of Dr. R. Beverly Cole 13
Appointment of Dr. James Simpson 13
Arizona has no effective quarantine laws 217
Average (monthly) rainfall on Pacific Coast 152
Average annual and seasonal temperature, Sacramento 167
Average seasonal rainfall 158

B

Bacilli, form spores 246
Bacilli, their relation to coast climate 208
Bacteria all multiply by binary divisions 246
Baker, Dr. H. B., causation of typhoid fever 46
Baldwin, Dr. H. G., communication from 16
Barwick, Sergeant J. A., U. S. Signal Corps, indebtedness to 72
Barwick, Sergeant, meteorological review of Sacramento from January, 1885, to August, 1886 164
Barwick, J. A., tables of annual and seasonal temperature from September, 1849, to August 31, 1886 167

PAGE.
Bates, Dr. C. B., on consumption in Santa Barbara 128
Black vomit in yellow fever 222
Boards of Health, local 51
Boards of Health, organized cities with 52
Boards of Health, many only so in name 52
Boards of Health, laws relating to 53
Boards of Health, incorporated cities without 53
Boards of Health, powers of State Board should be increased 54
Boards of Health, unincorporated cities or towns ought not to be left unprotected by 54
Boards of Health ought to be organized throughout the State 54
Board of Health, State, required to make investigations 57
Boards of Health, counties without organized 51
Boiling as a disinfectant 248
Bonté, Rev. J. H. C., on appointment of State Analyst 15
Botany of Surprise and Goose Lake Valleys 173
Boughton, Dr., communication from 18
Brewer, Professor, on vaccination 60
Briceland, Dr. J. M., on quarantine 14
Briceland, Dr. J. M., on the press 19
Briceland, Dr. J. M., on compensating Health Officer 17
Bronchitis, deaths from, 1884 to 1885 62
Bronchitis, mortality from, during 1885 and 1886 66
Bronchitis, chronic, mineral water advised in 214
Brown, Dr. W. I., report on phthisis in Downey City 129
Brown, Dr. C. W., report on phthisis in Pomona 129
Budd, Dr., opinion of, on causation of typhoid fever 48
Bullard, Dr. J. H., report on phthisis in Anaheim 129

C

California State Board of Health, abstract of proceedings of 9
California, the drinking habit in 134
Cancer, deaths from, 1884–5 62
Carman, Dr. B. R., instructions to correspond with 20
Carman, Dr. B. R., report on yellow fever in Mexico 38
Carman, Dr. B. R., thanks of the Board returned to 21
Carbolic acid as a disinfectant 251
Cerebro-spinal fever, deaths from, 1884–5 64
Cerebro-spinal fever, error in diagnosis of 64
Cholera infantum, deaths from, 1884–5 62
Cholera, facts for the people concerning 34
Cholera infantum, deaths from, 1885–6 70
Cholera infantum, tyrotoxicon a cause of 70
Chloride of lime as a disinfectant 248
Chloride, bi-, of mercury as a disinfectant 249
Chloride of mercury, to make a solution of 249
Chloride of zinc as a disinfectant 251
Cholera, prophylaxis against 262
Chlorosis, chalybeate springs advised in 214
Circular of inquiry about local Boards of Health 28
Circular letter to press regarding cholera 36
Cities with organized Boards of Health 52
Cities with Health Officer only 52
Clergymen's sore throat, alkaline springs for 215
Climate, its influence on disease 207
Climatology of Surprise and Goose Lake Valleys 175
Climatology and diseases of Southern California 107
Cluness, Dr. W. R., on the necessity of appropriation 24
Cluness, Dr. W. R., on death of Drs. Hatch and Gibbons 12
Cluness, Dr. W. R., on quarantine at Yuma 12
Cluness, Dr. W. R., Secretary pro tem 12
Coast climate, temperature of 205
Coast climate, therapeutics of 206
Cole, Dr. R. B., instructions to 10
Cole, Dr. R. B., on locality of quarantine 15
Cole, Dr. R. B., instructions to 16
Cole, Dr. R. B., verbal report on business of Board 19
Cole, Dr. R. B., remarks by 19
Colon, the Atlantic city of the Isthmus 237
Coloration of the skin in yellow fever 223
Committees of State Board 16
Committee to draft quarantine bill 19
Committee to revise law creating State Board of Health 24
Communication from Dr. Wolfred Nelson 18
Complete list of deaths impossible under present law 29

PAGE.
Congar, Dr. O. H., on typhoid fever in Pasadena 126
Consumption mortality from 1884 64
Consumption mortality from 1885-6 66
Consumption rare in Surprise and Goose Lake Valleys 182
Contra Costa County Hospital, report from 88
Conclusion of report of Secretary 73
Correspondents, thanks of Board to 23
Correspondents, remarks on 71
Correspondents, names and residence 82
Counties without incorporated cities or towns 57
Counties without Boards of Health 57
Copper sulphate as a disinfectant 251
Consolidated sick report from Fort Bidwell 195
County Recorders should be compelled to forward monthly abstracts of registration of births, deaths, and marriages 56
County Recorders unable to furnish statistics, reasons 29
Crowder, Dr. H. C., on additional distribution of monthly circulars 21
Crowder, Dr. H. C., on communicating with other State Boards 21
Crowder, Dr. H. C., on printing quarantine bill 22
Crowder, Dr. H. C., on irrigation 132
Croup, deaths from, 1884-5 62
Crane, Dr. J. A., on typhoid fever in Santa Ana 126
Crescent City, healthfulness of 208
Crescent City, change in climate of 202
Crescent City, variance in rainfall of 203
Crescent City, sanitary condition of 207
Crescent City, diseases of 208
Crescent City, its freedom from disease 209
Culture experiments, how to institute 245
Curran, Dr. R. E., report on phthisis in San Buenaventura 128

D

Danger from smallpox by way of Mexico and China 39
Danger to California from yellow fever 240
Davaine, experiments of 244
Deaths, inefficiency of law regarding 29
Definition of disinfection, Sternberg 241
Deodorants and antiseptics, when useful 263
Diabetes, mineral springs recommended in 216
Diarrhœa and dysentery, deaths from, in 1884 62
Diarrhœa and dysentery in Surprise and Goose Lake Valleys 183
Diarrhœa and dysentery, deaths from, 1884-5 62
Diarrhœa and dysentery, their prevalence in 1885-6 70
Diphtheria in Lincoln, Placer County 42
Diphtheria, report on 41
Diphtheria, Dr. J. N. McGowan on, Jolon, Monterey County 42
Diphtheria, Dr. C. W. Evans on, Modesto 43
Diphtheria, Dr. T. L. Magee on, in San Diego 43
Diphtheria, Dr. L. M. Lovelace on, in Lemoore 43
Diphtheria, Dr. Carl Walliser on, in Santa Cruz 44
Diphtheria in San Francisco, Dr. J. L. Meares 44
Diphtheria, deaths from, 1884-5 62
Diphtheria, Dr. H. N. Rucker on, in Merced 43
Diphtheria, spontaneous origin of, doubted 41
Diphtheria, mortality caused by, in 1885-6 67
Diphtheria in Surprise and Goose Lake Valleys 185
Diphtheria, Dr. Patterson's account of 185
Diphtheria, prophylaxis, against 268
Discovery by Mr. W. H. Power of milk scarlatina 68
Diseases of Surprise and Goose Lake Valleys, report on 183
Diseases of Southern California 121
Disinfectants to be employed in cholera 35
Disinfections and prophylaxis from infectious disease, by Dr. Sternberg 241
Disinfectants, how to use 35
Disinfectants to be employed 35
Disinfectants and deodorizers, distinction between 35
Disinfection, in what it consists 241
Disinfectants which have the power of destroying spores 247
Disinfectants which are effective in the absence of spores 247
Disinfection of the person 253
Disinfection of excreta, etc. 251
Disinfection of clothing and bedding 253
Disinfection of the sick-room 255
Disinfection of privy, vaults, cesspools, etc. 256

Page.

Disinfection of water and articles of food 257
Disinfection of hospitals 257
Disinfection of ships 258
Distribution of rain on California coast 200
District Attorney, reason for being unwilling to prosecute 56
Dioxide of sulphur as a disinfectant 250
Drinking habit in California, the 134
Drunkenness is a disease 147
Dry heat as a disinfectant 250
Dyspepsia in Surprise and Goose Lake Valleys 193
Dyspepsia, mineral springs advised in 215

E.

East wind, its effects 206
Elevation at which yellow fever is found 228
El Dorado County Hospital, report from 94
Election of Permanent Secretary 12
Election of Dr. H. S. Orme President 12
Enteric fever, mortality from 63
Experiments of Dr. Klein in milk scarlatina 68
Expenditures of State Board of Health 80
Evans, Dr. C. W., on diphtheria in Modesto 43

F

Failure to amend existing health laws 32
Fenn, Dr. C. M., reports on typhoid fever from San Diego 126
Fenn, Dr. C. M., reports on phthisis in San Diego 129
Fire an efficient means of disinfection 248
Forests, their influence on rainfall 201
Forrest, Dr. J. M., on prevailing diseases about Alturas and southern end of Goose Lake Valley 197
Fort Bidwell, location of 171
Fort Bidwell, meteorological report of, from 1866 to 1886 178
Fresno County Hospital, report from 99-100
Facts for the people concerning cholera 34

G

General directions for disinfection 247
General sanitary police, their duty 247
Germany, inspection of swine in 150
Germicide may act as an antiseptic 246
Germicide power of the coast winds 208
Gibbons, Dr. Henry, death of 27
Gibier, experiments on trichina 151
Glassford, Lieut. W. A., Signal Corps United States Army, indebtedness to 72
Glassford, Lieut. W. A., seasonal rainfall 1885-1886 on Pacific Coast 152
Glassford, Lieut. W. A., report on monthly averages of rainfall on Pacific Coast 158
Goose Lake and Surprise Valleys, report of Dr. Kober 170
Goose Lake Valley, location of 171
Gout, mineral springs to be selected for 213
Graham, Dr. J. W., report on phthisis in Los Alamos 128
Griffin, Dr. J. S., report on phthisis in Los Angeles 129
Groton, Dr. W. D., cases of trichiniasis 49

H

Handy, Dr. J. C., thanks of Board to 12
Hatch, Dr. F. W., decease of 17
Hay fever never known to originate in Southern California 128
Health Officers, an Act to provide for appointment of 31
Health, Local Boards, incorporated cities with 51
Health Boards, laws establishing 53
Health Officers should be appointed 54
Health Officers' compensation should be ample 55
Health, State Board of, committees of 16
Heart disease, mortality from, 1884 62
Hearst, Senator George, instructions to write to 24
Hill, Dr. R. W. of San Buenaventura, reports on rheumatism 126
Hospitals, reports from County 84
How does yellow fever spread 229
Hudson, Dr., opinion of, on causation of typhoid fever 48
Humidity of Southern California 118
Human family, alcohol and its influence on the 137
Hypochlorite of soda as a disinfectant 249

I

PAGE.

Incorporated cities, names of 51
Individual prophylaxis against infectious disease 241
Inebriate asylums, their absolute necessity 137
Illuminating oils, duty of examining 76
Information for neglect to record births, deaths, and marriages, to be the duty of the Secretary of the Board of Health 56
Intermittent fever, its prevalence 70
Inspection of swine, laws governing the, in Germany 150
International communication with infected countries, dangers from 58
Intoxicating liquors a potent factor in disease 147
Inyo County Hospital, report from 104
Irrigation, Dr. H. C. Crowder on 132

J

Japan current a cause of mild temperature 200
Jewell, Dr. J. Grey, alcohol and its influence on the human family 137

K

Kern County Hospital, report from 91, 104
Kerr, Dr. J. C., report on phthisis in Pasadena 129
Kline, Dr., on milk scarlatina 67
Kober, Dr. G. M., on mountain fever 187
Kober, Dr. G. M., on typhoid fever in Surprise and Goose Lake Valleys 188
Kober, Dr. G. M., U. S. Army, report on the topography, botany, climatology, and diseases of Surprise and Goose Lake Valleys 170
Kober, Dr. G. M., on typhoid fever in Modoc 40
Kochs, Professor, methods in biology 250
Krabbe on trichinosed meat 151

L

Lake County Hospital, report from 105
Lassen County Hospital, report from 101
Law relating to Boards of Health, the 53
Law relating to births, marriages, and deaths, the 55
Laws governing the inspection of swine in Germany 150
Legislature, attention of, called to health laws 58
Legislature should pass vaccination law, reason why 60
Legislature should grant increased power to Board 54–73
Legislature, failure of, to pass health laws 31
Legislature, business committee on 2
Liquor, soda chlorinata, as a disinfectant 249
LeConte, Professor John, on rainfall on northern coast 201
Local Boards of Health, report of Board on 7
Local Boards of Health, inefficiency of law regarding 29
Local Boards of Health clothed with power 52
Local Boards of Health, of whom they should be composed 54
Local Boards of Health, executive officers of, should be paid 55
Local Boards of Health should be compelled to notify State Board of prevailing sickness or epidemic disease 57
Lomb prize essays, order to purchase 23
Los Angeles County Hospital, report from 86–90
Lovelace, Dr. L. M., on diphtheria in Lemoore 43
Lucas, Dr. W. T., report on typhoid fever in Santa Maria 126

M

Magee, Dr. T. L., on diphtheria in San Diego 43
Matthews, Dr. W., U. S. A., botany of Surprise and Goose Lake Valleys 173
Mallet, Professor, investigation of potable water 77
Malarial affections in Goose Lake and Surprise Valleys 187
Marasmus, mortality from 1884 62
Mays, Dr. W. H., the drinking habit in California 134
McAllister, Dr., Quarantine Officer, efficiency of, in San Francisco 39
McCurdy, Dr. S., report on diphtheria in Azusa 127
McGowan, Dr. J. N. Moss, on diphtheria in Jolon 42
Meares, Dr. J. L., Health Officer, San Francisco 44
Measles, prevalence of, limited 46–69
Measles, quarantine in 46
Measles, deaths from, in 1884 62
Meat Inspectors in Germany 150
Medical profession, desire of, to aid State Board 29
Members of State Board of Health 2
Mendocino County Hospital, report from 88–91
Meningitis, deaths from, 1884 62

PAGE.
Meteorological data, Sergeant J. A. Barwick on 164
Meteorological report of Fort Bidwell from 1866 to 1886 178
Mexican epidemic of yellow fever in 1883 230
Milk as a cause of scarlet fever 67
Miller, Dr. J. H., of Redding, on compensating Health Officers 17
Miller, Dr. J. H., communication from 17
Micrococci multiplied by binary division 246
Mineral springs to be officially analyzed 34
Mineral springs, their use and abuse 210
Mineral springs, no reliable analysis of 211
Mineral springs, theory of production of twenty 212
Monthly averages of rainfall on the Pacific Coast 150
Monthly circular, interest created by 73
Monthly circular, distribution of 18
Mortality, review of, for 1884 62
Mortality, review of, for 1885 and 1886 65
Mortality, cause of apparent increase 65
Mortality from consumption, extrinsic of State 66
Mountain fever, Dr. G. M. Kober on 187
Mortuary statistics, 1884 and 1885 61
Mortuary statistics, 1885 and 1886 65
Muir, John A., thanks of Board to 12
Murchison, Dr., opinion of, on causation of typhoid 48

N

Names and residences of correspondents 82
Napa County Hospital, report from 89
National Board of Health on quarantine bill 23
Necessary conditions for yellow fever 220
Necessity for a correct record of vital statistics 30
Necessity of organizing local Boards of Health 54
Necessity of quarantine along our southern frontier 217
Neglect to record marriages, births, and deaths, should be punished by fine and imprisonment 56
Nelson, Dr. Wolfred, thanks of Board returned to 18
Nelson, Dr. Wolfred, on yellow fever, considered in its relation to California 220
Nephritis, mortality from, during 1884 62
Nevada County Hospital, report from 87
New Almaden Vichy water, analysis of 211
Ninth Biennial Report of State Board of Health 1
Nogales, a proper point for quarantine 217

O

Object of Act creating State Analyst 75
On the necessity of quarantine along our southern frontier, by M. F. Price, M.D. 217
On the use and abuse of the mineral springs of California, by I. W. Robertson, M.D. 210
Organized Boards of Health, towns with 52
Organized Boards of Health, permit for burial required in 29
Orme, Dr. H. S., on climatology and diseases of Southern California 118
Orme, Dr. H. S., election as President 12
Orme, Dr. H. S., motion of thanks to correspondents 23
Our correspondents 71

P

Pacific Coast, rainfall of 152
Pacific Coast rainfall, monthly averages 158
Parker, Dr., opinion on causation of typhoid 48
Patterson, Dr. Wm. H., on scarlet fever in Cedarville 184
Patterson, Dr. Wm. H., on diphtheria in 1878 186
Patterson, J. T., Signal Corps, U. S. A., indebtedness to 197
Perry, Dr. A., on typhoid fever in San Francisco 47
Perry, Dr. Ira, report on phthisis in Ojai Valley 128
Perry, Dr. A. M., on yellow fever in California 219
Permit for burial not required 29
Permit ought to be compulsory before burial 56
Pettinkoffer, Max V., on typhoid fever 47
Permanent Secretary, election of 12
Permanent Secretary, report of 27
Plumbing, inspection of 73
Placer County Hospital, report from 77
Phthisis pulmonalis among the Spanish in Southern California 129
Pneumonia, deaths from, 1884-85 62
Pneumonia, deaths caused by, in 1885-86 66

PAGE.

Power, Mr. W. H., of London, on milk scarlatina 67
President, election of 12
Press, acknowledgments to the 73
Press, report of Secretary on 73
Press, as an educator in sanitation 73
Press, circular letter to 36
Press, thanks of the Board returned to the 19
Price, Dr. M. F., on the necessity of quarantine along our southern frontier 217
Prophylaxis, individual, against infectious diseases, by Sternberg 241
Ptomaines, on 242
Purpose of bill creating State Analyst 33
Puerperal fever, infrequency of 208

Q

Quarantine in San Francisco Bay 13
Quarantine, report of Board on 5
Quarantine, Governor Stoneman on 13–14
Quarantine, an Act to establish in Port of San Francisco 22
Quarantine, Dr. Wolfred Nelson on 236
Quarantine, Dr. M. F. Price on 217
Quarantine, Dr. A. M. Perry on 209
Quarantine, bill presented to Congress on 60
Quarantine, Dr. John Rauch on 60
Quarantine, necessity of appropriation by Legislature for 61
Quarantine, in measles 46
Quarantine, Dr. R. B. Cole on 19
Quarantine, Dr. Jas. Simpson on 15
Quarantine, Dr. H. C. Crowder on 15
Quarantine, Dr. Briceland on 14
Quarantine, Dr. W. B. May on 14
Quarantine, Senator A. W. Saxe on 14
Qualitative analysis of Sanborn Wells 79
Quarterly meetings of State Board of Health 11

R

Rainfall of Pacific Coast 152
Rainfall, seasonal, 1885 and 1886 158
Rainfall, monthly averages on Pacific Coast 158
Rainfall of Crescent City 203
Rain, distribution of, on California Coast 200
Rats a cause of trichinæ in hogs 151
Recorders, County, unable to collect statistics 56
Recorders, duty of 28
Recorders, County, number deaths recorded with 29
Record of vital statistics, necessity of 30
Regarding elevation in yellow fever 228
Registration law inefficient 56
Registration of births, marriages, and deaths, law upon 55
Registration of births should be paid for 56
Registration of deaths must be provided for 56
Registration of deaths must be enforced under penalty 56
Remarks by Dr. M. F. Price on yellow fever 11
Remarks of Dr. W. R. Cluness on death of Drs. Hatch and Gibbons 12
Remarks by Dr. W. R. Cluness on quarantine at Yuma 12
Remarks by Dr. James Simpson on quarantine in San Francisco Bay 13
Remarks by Governor Stoneman on quarantine 13
Remarks by Dr. R. Beverly Cole on quarantine 13
Remarks by Dr. J. M. Briceland on quarantine 13
Remarks by Dr. H. C. Crowder on quarantine 14
Remarks by Rev. J. H. C. Bonté 14
Remarks by Senator A. W. Saxe 13
Remittent and intermittent fevers, their prevalence 70
Remittent and intermittent fevers, deaths from 64
Renal diseases, mineral springs recommended for 215
Report of expenditures of State Board of Health 80
Report on the topography, botany, climatology, and diseases of Surprise and Goose Lake Valleys 170
Report of deaths in California in 1884 106
Report of deaths in California in 1886 113
Reports from County Hospitals 84
Report of State Board of Health 1
Report of the Board to Governor Stoneman 5
Report of the Permanent Secretary 27
Report of the State Analyst 75

PAGE.
Report from Signal Service Corps 152
Report on the coast climate of California 199
Result of law appointing State Analyst not determined 33
Resolutions on contributing to American Public Health Association 22
Resolution of thanks to correspondents 23
Resolution authorizing Dr. R. B. Cole to confer with authorities in Washington on quarantine law 16
Resolution to revise the laws providing for the establishment of a State Board of Health 24
Resolution authorising the printing of quarantine bill 22
Resolution to contribute to Committee on Disinfectants 22
Resolution instructing the Secretary to write to Senator Hearst on the matter of quarantine 24
Resolution instructing the Secretary to prepare circulars 17
Review of mortality of 1885 and 1886 65
Rheumatism in Modoc County 191
Rheumatism, thermal baths in 213
Rhodes, Dr. E. C., communication from 18
Rhodes, Dr. E. C., on sanitary condition Bartlett Springs 18
Rising, Professor W. B., report of 75
Robertson, Dr. J. W., on coast climate of California 199
Robertson, Dr. J. W., on the use and abuse of the mineral springs of California 210
Rocky Mountains a barrier to cold winds 200
Ross, Dr. T. King, Quarantine Officer 37
Rowell, Dr. Chester, resignation of 27
Rucker, Dr. H. N., on diphtheria in Merced 43

S

Santa Cruz County Hospital, report from 100
Santa Clara County Hospital, report from 84
San Diego County Hospital, report from 102
San Bernardino County Hospital, report from 90
San Luis Obispo County Hospital, report from 102
San Mateo County Hospital, report from 98
San Joaquin County Hospital, report from 85–92
San Benito County Hospital, report from 87–98
Saxe, Senator, on quarantine bill 14
Saxe, Senator, health bills intrusted to 31
Saxe, Senator, allows vaccination bill to fail 32
Scarlet fever, limited mortality from 44
Scarlet fever in Modoc County 44
Scarlet fever in Truckee 45
Scarlet fever in Tehama 45
Scarlet fever in Shasta 45
Scarlet fever, necessity for quarantine against 45
Scarlet fever, dangers incurred from the disease 45
Scarlet fever, deaths from, in 1884 62
Scarlet fever in Goose Lake Valley 184
Scarlet fever, advice to those in danger of 268
Scrofula, mineral springs advised for 214
Secretary to issue circulars 17
Seasonal rainfall, 1885–1886 152
Shasta County Hospital, report from 89
Sierra County Hospital, report from 95–103
Signal Service Corps, thanks to 72
Signal Service U. S. A., report of Lieut. W. A. Glassford 72
Signal Service U. S. A., report of Sergeant J. A. Barwick 72
Simpson, Dr. James, on appropriation for quarantine 15
Simpson, Dr. James, on compensating Health officers 17
Skin diseases, mineral water advised for 214
Smallpox, importance of quarantine against 39
Smallpox, absence from State depends on quarantine 58
Smallpox, cases in California, 1885 and 1886, stamped out 39
Smallpox, danger from, through Mexico, China, and Japan 39
Smallpox, danger of invasion by 58
Smallpox, deaths from, in 1884 80
Smallpox, prophylaxis against 266
Smallpox, precautions to be taken against 267
Southern Pacific Railroad, thanks of Board to 12
Sonoma County Hospital, report from 93
Soil of Southern California 118
Southern California, tabulated presentation of diseases in 124
Spores of bacilli difficult of destruction 246
Spanish natives, victims to phthisis 129

PAGE.

Statistics and registration 55
State Board of Health, requires Auxiliary Local Boards 57
Statistics, mortuary 61
Statistics of loss occasioned by coal oil explosions 76
Steam under pressure, as a disinfecting power 248
Sternberg, Dr. G. M., U. S. A., essay on disinfectants and prophylaxis against infectious disease 241
State Board of Health, increased authority should be granted to 53
State Board of Health, ninth biennial report of 5
State Analyst, report of 75
State Analyst, bill establishing the office of 33
Standing Committees of the State Board of Health 2
Statement of expenses of State Board of Health 80–81
State should establish asylums for drunkards 147
Stoneman, Governor, on quarantine 13
Stoneman, Governor, on difficulty of obtaining funds for quarantine purposes 16
Sulphurous acid gas an impotent for destruction of spores 250
Sulphur dioxide as a disinfectant 250
Sulphate of copper as a disinfectant 251
Supplementary report to Dr. Kober on prevailing diseases about Alturas and Goose Lake Valley 197
Surprise and Goose Lake Valleys, concluding observations on 196
Surprise and Goose Lake Valleys, report on, by Dr. Kober 170
Sunstroke, deaths from, in 1885-86 67
Sunstroke, or thermic fever 71
Sunstroke rare in California 71
Sunstroke, intemperate habits a cause of 71
Swine, laws governing the inspection of, in Germany 149

T

Taylor, Dr. W. S., case of trichiniosis 50
Tabulated presentation of various diseases 124
Tehama County Hospital, report from 94
Temperature of Southern California 120
The climatology and diseases of Southern California 118
Thermic fever, or sunstroke 71
Thermic fever, intemperate habits a cause of 71
Topography of Southern California 118
Trichiniasis in California 49
Trichiniasis, Dr. W. S. Taylor, case of 50
Trichiniasis, Dr. W. D. Groton, case of 49
Trichiniasis, how to protect the citizens from 51
Trichiniasis, the prophylaxis of, Dr. A. Abrams 149
Trinity County Hospital, report from 84
Tuolumne County Hospital, report from 105
Tuolumne Independent responds to the Board 18
Typho-malarial fever in Southern California 126
Typhoid fever 46
Typhoid fever, Dr. Max V. Pettinkoffer on causation of 46
Typhoid fever, Dr. H. B. Baker on causation of 46
Typhoid fever, indestructibility of the poison of 49
Typhoid fever, deaths from, in 1884 63
Typhoid fever, deaths from, in 1885 and 1886 63
Typhoid fever, Dr. G. M. Kober, U. S. A., on 48
Typhoid fever, water as a carrier of 49
Typhoid fever in Massachusetts 69
Typo-malarial fever, deaths from 64
Tyrrell, Dr. G. G., election as Secretary 12
Tyrrell, Dr. G. G., report as Permanent Secretary 27

U

United States Signal Service reports 152
Use of disinfectants, and best method of disinfection 247
Use and abuse of the mineral springs of California, by Dr. J. W. Robertson 210

V

Vaccination, an Act to require 32
Vaccination, reason for being interested in 58
Vaccination of public school children 58
Vaccination, compulsory not expedient 58
Vaccination in Canada 59
Vaccination, Rhode Island 59

PAGE.

Vaccination, Connecticut 59
Vaccination, Massachusetts 59
Vaccination, New Jersey 59
Vaccination, Illinois 60
Vaccination, Professor Brewer on 60
Vaccination, compulsory in certain counties 40
Vaccination, Dr. J. M. Toner on 40
Vaughan, Professor V. C., on tyrotoxicon 70
Vallin on trichinæ 151
Von Geitl on generation of typhoid fever 48

W

Water, analysis of potable 76
Watson, Dr. Irving A., acknowledgment to 73
Walliser, Dr. Carl, on diphtheria in Santa Cruz 44
Water as a source of typhoid fever 49
Welden, Dr., remarks on disease of liver in San Pedro 131
Wells, Fargo & Co., thanks of Board to 12
Wet and dry seasons on the coast 204
Whaley, Dr. F. S., reports from Compton 126
Whitney, Senator G. E., bill forbidding burial without certificate of death 31
Whooping-cough 69
Whooping-cough, its relation to measles 69
Widney, Dr. J. P., report on phthisis in Los Angeles 129
Winds of Southern California 120
Winds a modifier of temperature 204
Winter rains and dry Summers 204
Women of California important allies in sanitary observances 57

Y

Yellow fever, history of 226
Yellow fever, treatment of 224
Yellow fever, symptoms of 221
Yellow fever on Isthmus of Panama 221–223
Yellow fever in California 219
Yellow fever 37
Yellow fever, Dr. W. Nelson on 37
Yellow fever, Dr. B. R. Carman on 38
Yellow fever, Dr. A. Perry on 219
Yellow fever, prophylaxis in 206
Yellow fever, advice to those in danger of 266
Yellow fever, considered in its relation to California 220
Yellow fever, danger to California from 240
Yellow fever caused by a specific germ 220
Yellow fever, necessary conditions for 220
Yellow fever, diagnostic point in 222
Yellow fever, post-mortem appearances in 223
Yellow fever, duration of disease 226
Yellow fever in the United States of America 227
Yellow fever, elevation at which found 228
Yellow fever, present tendency to epidemic of 229
Yellow fever, how does it spread 229
Yellow fever, Mexican epidemic of 1883 230
Yellow fever, in San Francisco 231
Yellow fever, danger of Sacramento Valley 240
Yellow fever, warning against introduction of 240
Yumas, quarantine at 11
Yumas, quarantine at, discontinued 12

Z

Zinc chloride as a disinfectant 251

REPORT

OF THE

BOARD OF DENTAL EXAMINERS

OF THE

STATE OF CALIFORNIA.

SACRAMENTO:
STATE OFFICE.......JAMES J. AYERS, SUPT. STATE PRINTING.
1886.

REPORT.

To his Excellency George Stoneman, *Governor of the State of California:*

Sir: The Board of Dental Examiners of the State of California, submit the following as their first annual report of its proceedings, together with an account of all moneys received and disbursed in compliance with the requirements of that certain Act of the Legislature entitled "An Act to insure the better education of practitioners of dental surgery, and to regulate the practice of dentistry in the State of California," approved March 12, 1885. A copy of which Act is hereto annexed.

THE BOARD APPOINTED, NAMELY:

S. W. Dennis, M.D., D.D.S	San Francisco.
Thomas Morffew, D.D.S	San Francisco.
M. J. Sullivan, D.D.S	San Francisco.
E. W. Biddle	Healdsburg.
S. S. Southworth	Sacramento.
J. W. Hollingsworth	Los Angeles.
C. W. Hibbard, D.D.S	San Francisco.

The Board convened at the Palace Hotel, San Francisco, on April 6, 1885, and elected S. W. Dennis, of San Francisco, President, and C. W. Hibbard, San Francisco, Secretary.

As Section 4 of the Act required that within six months from the time that the Act took effect all persons engaged in the practice of dentistry in the State should register, the Board prepared a set of blank forms for that purpose; and these, together with a copy of the law, were distributed generally to all persons in the State reported to be so engaged in practicing dentistry. Notices were also published in the daily papers that the books of the Board were open for registration, and advising all persons who had not received the necessary blanks, to apply at the Secretary's office for them, the Board deeming it its duty to as thoroughly as possible enlighten the resident members of the profession on this point.

The books of the Board show that the first registration made by it was on June twenty-ninth; that in June thirty names were registered; in July, one hundred and fifty-four; August, one hundred and thirty-seven; September, one hundred and forty-five; being a total of four hundred and sixty-six who were registered upon their verified statements that they were practicing dentistry on the twelfth day of March, 1885. In addition to these, ten diplomas have been indorsed by the Board as satisfactory, and certificates issued to that effect, which brings the number of legalized practitioners in the State to four hundred and seventy-six.

At a meeting of the Board held November twenty-fourth, the following resolution was adopted:

Resolved, That the Board, in examining applicants for certificates to practice dentistry, pursue the course recommended by the National Board of Dental Examiners, and adopted by other State Boards, and that the Board examine in the branches of Anatomy, Histology, Physiology, Pathology, Materia Medica, Surgery, Therapeutics, Chemistry, Operative Dentistry, Prosthetic Dentistry, and Irregularities.

Resolved, further, That the theoretical examination be in writing; that sixty per cent of correct answers be required to pass the examination; and that each candidate be required to furnish a patient on which he must show his operative and practical qualifications.

A list of all whose names have been registered, and of all whose diplomas have been indorsed as satisfactory to the Board, and to whom certificates have been issued, is hereto annexed.

The Board has held seventeen meetings. At the meeting of the Board on the twenty-third day of July, 1885, a resolution was adopted, fixing the bonds of the Secretary at $500, and at its meeting on the sixth of August his bond in that sum, with two sureties, was accepted and placed in charge of the President.

The Board at its meeting on the twenty-second day of July elected as its attorney, Arthur Rodgers, of San Francisco.

The next regular meeting of the Board, for the examination of candidates, will be held February 2, 1886.

On the twenty-second of October an application for a writ of mandate was filed in the Superior Court of San Francisco, to require the Board to indorse as satisfactory the diploma of the petitioner who had declined to pay the fee of $10, required by the Board in pursuance of the law.

Upon the hearing the Court decided in favor of the Board, requiring it to so indorse the diploma, being satisfied with the college issuing it, and that it belonged to the petitioner only upon his paying the fee of $10.

The following is an account of all money received and disbursed by the Board:

RECEIPTS.

For registration, $1 per each—466 persons	$466 00
Received from indorsement of diplomas, $10 for each applicant—10 applicants	100 00
From examinations, $10 for each applicant—three applications	30 00
	$596 00

DISBURSEMENTS.

Printing	$89 90
Stationery	50 25
Traveling expenses of members	11 00
Desk for Board	20 00
Letter press and stand	11 50
Seal for Board	6 50
Attorney fees	25 00
Incidentals	25 40
	$239 55
Balance in hand of Secretary	356 45

All persons who are now practicing dentistry in this State, and who have not registered or received a certificate from this Board, in pursuance of the Act mentioned, are violating the law and subject to arrest and a fine of $50 to $200, or imprisonment for six months in the county jail, for each and every offense.

Further: It will be necessary for all persons, who may hereafter desire to engage in the practice of dentistry in this State, to secure a certificate from this Board upon diploma from a reputable Dental College, or after examination in dental surgery, as required by said Act.

It is too soon yet to appreciate the effects of the law, but it has the support of almost all the members of the profession in the State, and is expected to raise and establish a standard of excellence in dental practice which will be beneficial to the public and command their confidence.

All of which is respectfully submitted.

Board of Dental Examiners of the State of California.

By S. W. DENNIS, President.

And C. W. HIBBARD, Secretary.

DECEMBER 1, 1885.

CHAPTER CXXVII.

An Act to Insure the better Education of Practitioners of Dental Surgery, and to Regulate the Practice of Dentistry in the State of California.

[Approved March 12, 1885.]

The People of the State of California, represented in Senate and Assembly, do enact as follows:

SECTION 1. It shall be unlawful for any person who is not at the time of the passage of this Act engaged in the practice of dentistry in this State, to commence such practice, unless he or she shall have obtained a certificate as hereinafter provided.

SEC. 2. A Board of Examiners, to consist of seven practicing dentists, is hereby created, whose duty it shall be to carry out the purposes and enforce the provisions of this Act. The members of said Board shall be appointed by the Governor from the dental profession of the State at large. The term for which the members of said Board shall hold their offices shall be four years, except that two of the members of the Board, first to be appointed under this Act, shall hold their office for the term of one year, two for the term of two years, two for the term of three years, and one for the term of four years respectively, and until their successors shall be duly appointed and qualified. In case of a vacancy occurring in said Board, such vacancy shall be filled by the Governor in conformity with this section.

SEC. 3. Said Board shall choose one of its members President, and one the Secretary thereof, and it shall meet at least once in each year, and as much oftener and at such times and places as it may deem necessary. A majority of said Board shall at all times constitute a quorum, and the proceedings thereof shall at all reasonable times be open to public inspection.

SEC. 4. Within six months from the time this Act takes effect, it shall be the duty of every person who is now engaged in the practice of dentistry in this State, to cause his or her name and residence or place of business to be registered with said Board of Examiners, who shall keep a book for that purpose. The statement of every such person shall be verified under oath before a Notary Public or Justice of the Peace, in such manner as may be prescribed by the Board of Examiners. Every person who shall so register with said Board as a practitioner of dentistry shall receive a certificate to that effect, and may continue practice as such without incurring any of the liabilities or penalties provided in this Act, and shall pay to the Board of Examiners for each registration a fee of one dollar. It shall be the duty of the Board of Examiners to forward to the County Clerk of each county in the State, a certified list of the names of all persons residing in his county who have registered in accordance with the provisions of this Act, and it shall be the duty of all County Clerks to register such names in a book to be kept for that purpose.

SEC. 5. Any and all persons, who shall so desire, may appear before the Board at any of its regular meetings, and be examined with reference to their knowledge and skill in dental surgery; and if the examination of any such person or persons shall prove satisfactory to said Board, the Board of Examiners shall issue to such persons as they shall find to possess the requisite qualifications, a certificate to that effect, in accordance with the provisions of this Act. Said Board shall also indorse as satisfactory diplomas from any reputable dental college, when satisfied of the character of such institution, upon the holder furnishing evidence, satisfactory to the Board, of his or her right to the same, and shall issue certificates to that effect within ten days thereafter. All certificates issued by said Board shall be signed by its officers, and such certificates shall be prima facie evidence of the right of the holder to practice dentistry in the State of California.

SEC. 6. Any person who shall violate any of the provisions of this Act, shall be deemed guilty of a misdemeanor, and, upon conviction, may be fined not less than fifty dollars, nor more than two hundred dollars, or confined six months in the county jail, for each and every offense. All fines recovered under this Act shall be paid into the Common School Fund of the county in which such conviction takes place.

Sec. 7. In order to provide the means for carrying out and maintaining the provisions of this Act, the said Board of Examiners shall charge each person applying to or appearing before them for examination for a certificate of qualifications, a fee of ten dollars, which fee shall be in no case returned; and out of the funds coming into the possession of the Board from the fees so charged, and penalties received under the provisions of this Act, all legitimate and necessary expenses incurred in attending the meetings of said Board shall be paid; and no part of the expenses of the Board shall ever be paid out of the State Treasury. All moneys received in excess of expense above provided for, shall be held by the Secretary of said Board as a special fund for meeting the expenses of said Board, and carrying out the provisions of this Act, he giving such bonds as the Board shall from time to time direct; and said Board shall make an annual report of its proceedings to the Governor by December first of each year, together with an account of all moneys received and disbursed by them pursuant to this Act.

Sec. 8. Any person who shall receive a certificate from said Board to practice dentistry, shall cause his or her certificate to be registered with the County Clerk of the county in which such person may reside, and the County Clerk shall charge for registering such certificates a fee of one dollar. Any failure, neglect, or refusal on the part of any person holding such certificate to register the same with the County Clerk as above directed, for a period of six months, shall work a forfeiture of the certificate; and no certificate when once forfeited shall be restored, except upon the payment to the said Board of twenty-five dollars as a penalty for such neglect, failure, or refusal.

Sec. 9. Any person who shall knowingly and falsely claim or pretend to have or hold a certificate of license, diploma, or degree, granted by any society organized under and pursuant to the provisions of this Act, or who shall falsely and with intent to deceive the public, claim or pretend to be a graduate from any incorporated dental college, shall be deemed guilty of a misdemeanor, and shall be liable to the same penalty as provided in section six.

Sec. 10. Nothing in this Act shall be so construed as to prohibit any practicing physician from extracting teeth.

Sec. 11. This Act shall take effect immediately.

OFFICIAL REGISTER

OF DENTISTS HOLDING CERTIFICATES FROM THE BOARD OF DENTAL EXAMINERS IN THE STATE OF CALIFORNIA.

ALAMEDA COUNTY.

Burnette, E. T.	Oakland.
Bates, C. P.	Berkeley.
Bishop, M. N.	Alameda.
Brooks, W. E.	Oakland.
Barradas, F. C.	San Leandro.
Bernard, Geo. (diploma, Ind.)	Livermore.
Cole, R. E.	Oakland.
Craig, W. H.	Oakland.
Carpenter, O.	Oakland.
Cool, R. H.	Oakland.
Cornwall, A.	Oakland.
Cool, G. W.	Oakland.
Dimmick, J.	Oakland.
Dunn, R. K.	Oakland.
Edwards, B. F.	Oakland.
Garcia, M. J.	San Leandro.
Gilman, S. M.	Oakland.
Halsey, I. S.	Oakland.
Hall, T. W.	Oakland.
Hutton. J.A. D.	Berkeley.
Hackett, S. A.	Oakland.
Kriechbaum, G. H.	Oakland.
Koehler, F.	Sunol.
Lane, C. S.	Oakland.
Lee, E. M.	East Oakland.
Luce, G. J.	Oakland.
Meek, R. W.	Oakland.
Mories, A. H.	Oakland.
Morris, T. H.	Oakland.
Merriman, A. F.	Oakland.
Merriman, A. F., Jr.	Oakland.
Rodolph, C. F.	Oakland.
Rabe, J.	Oakland.
Stoakes, F. C.	San Leandro.
Simmons, W. H.	Oakland.
Schmidt, G. L.	Oakland.
Schumer, A. C.	Oakland.
Savage, S. L.	Livermore.
Tate, S. P., Jr.	Oakland.
Wilson, O. F.	Oakland.
Waltz, G. W.	Oakland.

AMADOR COUNTY.

Gray, John	Ione.
Gabbs, E. S.	Sutter Creek.
La Due, W. K.	Plymouth.

BUTTE COUNTY.

Crum, T. A.	Chico.
McFadgen, A.	Chico.
Norman, Geo. H.	Gridley.
Read, W. S.	Oroville.
Ward, S. T.	Chico.
Wasley, D. W.	Chico.

COLUSA COUNTY.

Ciley, J. L.	Little Stony.
Pirkey, M.	Willows.
Smith, Frank Z.	Colusa.
Washer, W. A.	Williams.

CONTRA COSTA COUNTY.

McCabe, Ed.	Brentwood.
Moore, J. S.	Martinez.
Moore, J. S., Jr.	Martinez.

CALAVERAS COUNTY.

Oviatt, S. M.	San Andreas.
Smith, C. D.	Angels Camp.

EL DORADO COUNTY.

Walk, Chas. L.	Placerville.
Tyson, Chas.	Placerville.
Stone, W. W.	Placerville.

FRESNO COUNTY.

Cooper, J. C.	Fresno.
Doyle, B. W.	Fresno.
Hunsaker, A. L.	Fresno.
Hendricks, H. T.	Kingsburg.
Prather, W. J.	Fresno.

HUMBOLDT COUNTY.

Beverton, D. W.	Eureka.
Ingersoll, A. E.	Eureka.
O'Connor, D. L.	Blocksburg.
Ray, C. B.	Arcata.
Thompson, R. P.	Ferndale.
Weldon, J. A.	Eureka.
Weldon, E. J.	Eureka.

KERN COUNTY.

Bonham, J. F.	Bakersfield.

LOS ANGELES COUNTY.

Adams, S. H.	Los Angeles.
Bird, W. R.	Los Angeles.
Baldwin, C. V.	Los Angeles.
Burgess, R. F.	Santa Ana.
Cunningham, R. G.	Los Angeles.
Crawford, J. S.	Los Angeles.
French, L. W.	Los Angeles.
Hubbell, A. B.	Los Angeles.
Hollingsworth, J. W.	Los Angeles.
Hollingsworth, M. W.	Los Angeles.
Janes, R. K	Pasadena.
Masser, W. H.	Los Angeles.
McCoy, John C.	Orange.
Palmer, Frank M.	Los Angeles.
Stephens, Frank E.	Los Angeles.
Stephens, C.	Los Angeles.
Smith, Uriel	Los Angeles.
Tolhurst, S. H.	Los Angeles.
Tolhurst, G. W.	Los Angeles.

Todd, Baxter	Los Angeles.
Vanderlip, John F.	Santa Ana.
Vanderlip, George G.	Santa Ana.
White, J. M.	Los Angeles.
Wells, L. W.	Los Angeles.
Young, John E.	Santa Ana.

LAKE COUNTY.

Gilstrop, J. W.	Kelseyville.
Hutchins, J. M.	Lakeport.
Redmond, J. J.	Middletown.

MARIN COUNTY.

Thomas, H. B.	San Rafael.

MODOC COUNTY.

Camicia, L. S.	Lookout.
Epperson, J. H.	Alturas.
Taylor, J. M.	Alturas.

MENDOCINO COUNTY.

Hoffman, M.	Ukiah.
Holmes, C. A.	Mendocino City.
Hogshead, W. H.	Ukiah.
Mitchell, Hiram H.	Ukiah.
Mitchell, Marling N.	Ukiah.
McCowan, ——	Ukiah.
Willsey, T. F.	Covelo.

MERCED COUNTY.

Prather, W. R.	Merced.
Wassman, Max	Merced.

MONTEREY COUNTY.

Barden, W. N.	Salinas.
Lemon, George B.	Salinas.

NAPA COUNTY.

Davis, C. E.	St. Helena.
Farman, C. H.	Napa.
Hackett, F. M.	Napa.
Hackett, C. C.	Napa.
Key, J. W.	Calistoga.
Porter, S. P.	Napa.
Porter, E. M.	Napa.
Sabin, C. R.	St. Helena.

NEVADA COUNTY.

Carr, G. B.	Grass Valley.
Chapman, A.	Nevada City.
Chapman, Mrs. N. E.	Nevada City.
Eastman, W. W.	Nevada City.
Hays, Irvin W.	Grass Valley.
Harris, S. M.	Grass Valley.
Harris, M. Parke (dip. Ind.)	Grass Valley.
Lancaster, C. E.	North San Juan.
Martin, S. D.	Nevada City.
Pennington, A. R.	Nevada City.
Robinson, F. A.	Nevada City.

PLUMAS COUNTY.

Cate, David B.	Quincy.

PLACER COUNTY.

Rea, John	Lincoln.
Smith, J. F.	Forest Hill.
Wilson, M. W.	Dutch Flat.

STANISLAUS COUNTY.

Drullard, T. W.	Modesto.
Moad, V. R.	Modesto.
Preshaw, R. G.	Oakdale.

SACRAMENTO COUNTY.

Bates, B. F.	Folsom.
Gardner, Ed.	Sacramento.
Horner, J. Van C.	Sacramento.
Light, W. W.	Sacramento.
Pierson, H. H.	Sacramento.
Reid, T. B.	Sacramento.
Shaw, I. G.	Sacramento.
Shields, F. M.	Sacramento.
Stephenson, C. H.	Sacramento.
Southworth, S. S.	Sacramento.
Tebbets, Frank F.	Sacramento.
Wood, Wm.	Sacramento.

SISKIYOU COUNTY.

Hearn, F. G.	Yreka.
Larrison, Charles A.	Yreka.
Millberry, Arthur H.	Jordan.

SHASTA COUNTY.

Gleaves, A. D.	Anderson.
La Baru, W. H.	Shasta City.
Manchester, M. R.	Redding.
Tope, John H.	Redding.

SAN DIEGO COUNTY.

Barnes, F. J.	San Diego.
Cave, D.	San Diego.
Gould, H. W.	San Diego.
Philips, R. F.	San Diego.
Townsend, E. L. (diploma, Ind.)	San Diego.

SAN BERNARDINO COUNTY.

Bogart, S. C.	San Bernardino.
Musselman, S.	Cucamonga.
Sylvester, C. W.	Riverside.
Whitlock, Alma	San Bernardino.
Westover, G. C.	Riverside.

SANTA BARBARA COUNTY.

Doulton, G. H.	Santa Barbara.
Dimock, H. C.	Lompoc.
Livermore, Geo. W.	Santa Barbara.
Stauffer, H. W.	Santa Barbara.
Van Winckle, H. M.	Santa Barbara.
Lee, D. B.	Santa Barbara.
Yates, Lorenzo G.	Santa Barbara.

SAN MATEO COUNTY.

Ducker, John H.	San Mateo.

Santa Clara County.

Argall, Frank L.	San José.
Barker, Albert M.	San José.
Brigham, K. A.	Gilroy.
DeCrow, Warren	San José.
Finigan, L	San José.
Fisher, Mrs. Minnie	San José.
Gallup, Thos. E.	Santa Clara.
Higgins, C. R.	Mountain View.
Hooker, A. O.	San José.
Hall, E. C.	San José.
King, J. F.	San José.
Klein, N.	San José.
Kingsbury, Wm. B.	Santa Clara.
Ledyard, F. R.	San José.
Rogers, E. P.	Gilroy.
Rhodes, S. R.	San José.
Rogers, F. S.	Gilroy.
Sprake, W. T.	San José.
Spaw, C. R.	San José.
Whipple, T. S.	San José.

Santa Cruz County.

Bliss, Frank W.	Santa Cruz.
Bliss, Charles L.	Santa Cruz.
Butterfield, C. L.	Watsonville.
Gordon, Oscar L.	Santa Cruz.
Lundy, E. A.	Santa Cruz.
Libbey, J. L.	Watsonville.
Swain, H. P.	Watsonville.

San Benito County.

Cooper, Martin S.	Hollister.
Hendricks, John D.	Hollister.

San Joaquin County.

Burton, Frank	Stockton.
Davenport, A. C.	Stockton.
Fickett, S. H.	Stockton.
Goodell, L. E.	Stockton.
Hann, W. D.	Lodi.
Henderson, R. W.	Stockton.
Haines, N. J.	Stockton.
Meseroll, J. M.	Stockton.
Wallace, W. G.	Stockton.

Solano County.

Harding, W. C.	Suisun.
Moore, W. A.	Benicia.
Pendleton, B. F.	Vallejo.
Shaw, John F.	Vallejo.
Upchurch, N. B.	Vacaville.
Upham, F. F.	Dixon.
Voories, George L.	Vallejo.
Wyatt, M. O.	Dixon.
Stanton, J. C.	Rio Vista.

Sierra County.

Chapman, S. A.	Sierra City.
Douglas, G.	Downieville.
Gardiner, Thos.(diploma, Ind.)	Downieville.
Porter, J. P.	Truckee.

San Luis Obispo County.

Brown, W. G.	San Luis Obispo.
Garrison, D. M.	San Luis Obispo.
Nelson, W. H.	San Luis Obispo.

San Francisco County.

Adams, Q. L.	San Francisco.
Austin, H.	San Francisco.
Boyd, C. W.	San Francisco.
Bolton, Thomas	San Francisco.
Brewer, B. B.	San Francisco.
Beers, Barrett	San Francisco.
Birge, J. J.	San Francisco.
Blankman, Wm.	San Francisco.
Bunnell, E. F.	San Francisco.
Burns, O. B.	San Francisco.
Blaisdell, John H.	San Francisco.
Burch, Maria A.	San Francisco.
Berry, Charles A.	San Francisco.
Brown, A. V.	San Francisco.
Bush, Louis	San Francisco.
Blake, A. E.	San Francisco.
Blondin, Arthur	San Francisco.
Blake, Charles E.	San Francisco.
Bliss, F. A.	San Francisco.
Blood, J. N.	San Francisco.
Bloch, C.	San Francisco.
Bettis, Henry S.	San Francisco.
Boxton, C.	San Francisco.
Botsford, Geo. (diploma, Ind.)	San Francisco.
Brewer, F. A.	San Francisco.
Brewer, L. J.	San Francisco.
Clark, Franklin L.	San Francisco.
Cogswell, James L.	San Francisco.
Croome, Wm.	San Francisco.
Case, Charles E.	San Francisco.
Clarke, W. H.	San Francisco.
Cranz, Louis F.	San Francisco.
Conwell, C. C.	San Francisco.
Cochrane, E. O.	San Francisco.
Cummings, J. E.	San Francisco.
Crossett, E. T.	San Francisco.
Craigie, Henry	San Francisco.
Cane, Alfred	San Francisco.
Conradt, J. H.	San Francisco.
Coulsen, N. T. (dipl. Ind.)	San Francisco.
Cahill, S. D.	San Francisco.
Crossett, Truman	San Francisco.
Currah, J. M.	San Francisco.
Card, Wm. H.	San Francisco.
Chase, Maurice	San Francisco.
Christopher, T.	San Francisco.
Christensen, G. A.	San Francisco.
Cutlar, R.	San Francisco.
Cool, W. P.	San Francisco.
Casselly, John P.	San Francisco.
Dennis, S. W.	San Francisco.
Dentler, Ed. F.	San Francisco.
Drucker, Wm. E.	San Francisco.
Decker, Charles W.	San Francisco.
Ducket, C. S.	San Francisco.
Drucker, George J.	San Francisco.
Dunbar, L. L.	San Francisco.
Davis, Henry C.	San Francisco.
Dyer, J. J.	San Francisco.
Dutch, William	San Francisco.
Dean, G. S.	San Francisco.
Dempster, James	San Francisco.
Dean, C. O.	San Francisco.
Emerson, Ed. W.	San Francisco.
Edwards, Jas. W.	San Francisco.
Eisen, Ed. G.	San Francisco.
Fitzpatrick, W. E. (dip. Ind.)	San Francisco.
Fox, H. B.	San Francisco.
Ferguson, T. H.	San Francisco.
Fox, J. M.	San Francisco.
Fuller, C. H.	San Francisco.
Gorton, C. D.	San Francisco.

Goe, Sam. E.	San Francisco.
Goddard, C. L.	San Francisco.
Gonzales, I. T.	San Francisco.
Gabbs, M. F.	San Francisco.
Griswold, W. F.	San Francisco.
Graves, W. L.	San Francisco.
Gunzburger, B. M.	San Francisco.
Griffiths, Allen	San Francisco.
George, E.	San Francisco.
Hardcastle, George	San Francisco.
Hill, Alfred S.	San Francisco.
Hibbard, C. W.	San Francisco.
Heino, Julius	San Francisco.
Hatch, J. A.	San Francisco.
Hill, Albert B.	San Francisco.
Hill, Thomas L.	San Francisco.
Haselhurst, A. O.	San Francisco.
Hill, Alfred L.	San Francisco.
Haines, B. W.	San Francisco.
Harrison, E. L.	San Francisco.
Hastings, Robert	San Francisco.
Iglehart, T. M.	San Francisco.
Jacobs, B. R.	San Francisco.
Kauffung, Louis H.	San Francisco.
Knox, Henry E.	San Francisco.
King, L. A.	San Francisco.
Kemp, van Eee, Fred.	San Francisco.
Knowles, S. E.	San Francisco.
King, W. J.	San Francisco.
Knowles, William A.	San Francisco.
Knowlton, John S.	San Francisco.
Lee, L. A.	San Francisco.
Lundborg, J. A. W.	San Francisco.
Lightbody, H.	San Francisco.
Leek, George W.	San Francisco.
Little, J. R.	San Francisco.
Lord, Mrs. C. B.	San Francisco.
Leek, J. G.	San Francisco.
Locke, C. W.	San Francisco.
Lord, C. C.	San Francisco.
Lawrence, George O.	San Francisco.
Lightcap, Samuel E.	San Francisco.
Morffew, Thomas	San Francisco.
Monroe, George	San Francisco.
Maunder, Phillip	San Francisco.
Moore, C.	San Francisco.
Morton, Henry R.	San Francisco.
McKenzie, A. W.	San Francisco.
Matthews, James	San Francisco.
Massie, H. C.	San Francisco.
Malech, T. G.	San Francisco.
Morton, H. R., Jr.	San Francisco.
Mancilla, Maguel	San Francisco.
Mendes, Charles	San Francisco.
Neumann, L.	San Francisco.
Pearce, T. B.	San Francisco.
Price, W. E.	San Francisco.
Park, E. E.	San Francisco.
Peel, Jonathan	San Francisco.
Proll, R. B.	San Francisco.
Plompteaux, H. J.	San Francisco.
Porter, John S.	San Francisco.
Pratt, Frank E.	San Francisco.
Remington, J. W.	San Francisco.
Rau, Henry	San Francisco.
Rietzke, Gustav	San Francisco.
Rankin, J. H.	San Francisco.
Richards, W. H.	San Francisco.
Richards, C. W.	San Francisco.
Robinson, W. H.	San Francisco.
Roberts, S. H.	San Francisco.
Sichel, G. W. (diploma, Ind.)	San Francisco.
Schultz, E. H.	San Francisco.
Sublett, W. A.	San Francisco.
Salmon, Wm.	San Francisco.
Switser, Anna	San Francisco.
Spear, Thos. R.	San Francisco.
Sylvester, H.	San Francisco.
Smith, M. E.	San Francisco.
Schneider, Jos.	San Francisco.
Simms, Charles	San Francisco.
Sloat, Charles F.	San Francisco.
Sullivan, J. P.	San Francisco.
Sichel, Max	San Francisco.
Swain, E. M.	San Francisco.
Stevens, Henry H.	San Francisco.
Sanger, I.	San Francisco.
Spence, Stuart J.	San Francisco.
Sheets, H. Clay	San Francisco.
Sandford, L. N.	San Francisco.
Stanley, W. H.	San Francisco.
Sullivan, Maurice J.	San Francisco.
Savage, Henry	San Francisco.
Turner, H. C.	San Francisco.
Turner, W. A.	San Francisco.
Trueman, H. G.	San Francisco.
Thrall, H. H.	San Francisco.
Twist, J. F.	San Francisco.
Thrailkill, Wm. O.	San Francisco.
Teague, Fred.	San Francisco.
Teague, L. A.	San Francisco.
Trumpour, J. P.	San Francisco.
Urmy, H. N.	San Francisco.
Vidaver, N. J.	San Francisco.
Van Crombrugghe, A.	San Francisco.
Wilson, C. H.	San Francisco.
Wilbert, J. L.	San Francisco.
Wood, Andrew B.	San Francisco.
Warner, A.	San Francisco.
Wade, Thos.	San Francisco.
Whitcomb, N. T.	San Francisco.
Young, H. G.	San Francisco.
Younger, W. J.	San Francisco.
Younger, Ed. A.	San Francisco.

SONOMA COUNTY.

Biddle, E. W.	Healdsburg.
Cook, W. E.	Healdsburg.
Caldwell, F. M.	Santa Rosa.
Cole, Hiram	Santa Rosa.
Coomes, A. M.	Cloverdale.
Eshbach, D. M.	Sonoma.
Lovejoy, S. E.	Petaluma.
Lovejoy, George E.	Petaluma.
McLain, A. F.	Santa Rosa.
Perkins, C. O.	Petaluma.
Reed, Charles W.	Santa Rosa.
Savage, C. W.	Santa Rosa.
Saul, George M.	Santa Rosa.
Stone, John T.	Santa Rosa.
Wiley, J. N.	Santa Rosa.

TRINITY COUNTY.

Spratt, C. W.	Weaverville.

TUOLUMNE COUNTY.

Menendez, I. A.	Sonora.
Menendez, Henry	Sonora.

TEHAMA COUNTY.

Barrett, C. J.	Red Bluff.
Fuller, F. N.	Red Bluff.
Sehorn, W. A.	Red Bluff.

Tulare County.

Asay, J. L.	Visalia.
Asay, C. E.	Visalia.
Cooper, E. M.	Visalia.
Hunsaker, G. W.	Tulare.
Martin, Tood	Tulare.

Ventura County.

Hedrick, Lyman	San Buenaventura.
Stuart, S. L.	San Buenaventura.

Yolo County.

Dick, A. N.	Woodland.
Holmes, S. B.	Woodland.
Hodgen, ——	Woodland.
Musselman, D.	Madison.

Yuba County.

Boyd, Geo. H.	Marysville.
Jewett, Stanley	Marysville.
Smith, J. B. M.	Marysville.
Walker, John D.	Hansonville.
Walker, Albin J.	Hansonville.

REPORT

OF THE

BOARD OF DENTAL EXAMINERS

OF THE

STATE OF CALIFORNIA.

SACRAMENTO:
STATE OFFICE,.............JAMES J. AYERS, SUPT. STATE PRINTING.
1886.

REPORT.

To his Excellency George Stoneman, *Governor of the State of California:*

Sir: The Board of Dental Examiners of the State of California submit the following as their second annual report of its proceedings, together with an account of all moneys received and disbursed, in compliance with the requirements of that certain Act of the Legislature entitled "An Act to insure the better education of practitioners of dental surgery, and to regulate the practice of dentistry in the State of California," approved March 12, 1885. A copy of which Act is hereunto annexed.

Since issuing the last report, the Board has held seven meetings. The meetings of December 1, 1885, February 2, 1886, and November 3, 1886, were regular meetings for examination of candidates.

At the meeting of December 1, 1885, four candidates appeared for examination, three of whom successfully passed. At said meeting (December 1, 1885,) the following resolutions were adopted:

Whereas, Certain practitioners of dentistry in the State of California who were engaged in such practice in the State on the twelfth day of March, 1885, failed to register by reason of misconception of the Act of the Legislature of that date, or of lack of information concerning the requirements thereof; and whereas, it is the evident intention of said Act to permit those engaged in the practice of dentistry on said date (March 12, 1885,) to continue such practice; therefore,

Resolved, That it is the desire of the Board of Dental Examiners of the State of California to register all who were engaged in the practice of dentistry in the State at the time of the passage of said Act of the Legislature (March 12, 1885,) upon the filing with the Board by such practitioners of the proper verified statement to that effect, and whenever the proper tribunal shall authorize this Board of Examiners to make such registration.

Resolved, That in addition to the railroad fares, that country members be allowed three dollars per day for expenses while attending meetings of the Board.

At this meeting the officers for the ensuing year were elected as follows: S. W. Dennis, M.D., D.D.S., of San Francisco, President, and C. W. Hibbard, D.D.S., of San Francisco, Secretary.

At a meeting held December 5, 1885, it was resolved that the branch of Clinical Operative Dentistry be added to those already adopted by the Board; and also, that candidates be required to obtain 75 per cent in their examinations, to entitle them to a certificate to practice dentistry.

On March 24, 1886, Governor Stoneman appointed on the Board, Wm. J. Younger, M.D., of San Francisco, vice Maurice J. Sullivan, D.D.S., of San Francisco, and J. S. Crawford of Los Angeles, vice J. W. Hollinsworth of Los Angeles.

On the fifth day of April, 1886, Ira D. Card began suit in the Superior Court of San Francisco, before Hon. J. G. Maguire, Judge, against the Board of Dental Examiners, and caused a writ of mandate to issue, requiring the Board to show cause why it should not register his name.

The facts fully appear in the decision, of which the following is a copy:

THE DECISION.

This is an application for a writ of mandate to compel defendant, the State Board of Dental Examiners, to register the plaintiff as a practicing dentist upon his duly verified statement that he was engaged in the practice of dentistry in this State at the time of the passage of "an Act to regulate the practice of dentistry, etc.," approved March 12, 1885. (Stats. 1885, p. 110.)

The Board does not question the truthfulness of the verified statement so presented, nor its sufficiency in form or substance, but declines to register on such a statement because it was not presented within six months after the passage of the aforesaid Act.

The Act, in so far as it relates to the matter here involved, provides:

Section 1. It shall be unlawful for any person who is not, at the time of the passage of this Act, engaged in the practice of dentistry in this State, to commence such practice, unless he or she shall have obtained a certificate as hereinafter provided.

Section 2 provides for the appointment and terms of a Board of Examiners.

Section 3 provides for its meetings and officers.

Section 4. Within six months from the time that this Act takes effect, it shall be the duty of every person who is now engaged in the practice of dentistry in this State to cause his or her name and residence or place of business to be registered with said Board of Examiners, who shall keep a book for that purpose. The statement of every such person shall be verified under oath before a Notary Public or Justice of the Peace, in such manner as may be prescribed by the Board of Examiners.

Every person who shall register with the said Board as practitioners of dentistry shall receive a certificate to that effect, etc.

Section 6. Any person who shall violate any of the provisions of this Act, shall be deemed guilty of a misdemeanor, and upon conviction, may be fined not less than fifty dollars nor more than two hundred dollars, or confined six months in the county jail for each and every offense, etc.

APPLICATION OF THE ACT.

This Act applies to all persons practicing dentistry in this State, except that, by section ten, it is provided:

"Nothing in this Act shall be so construed as to prohibit any practicing physician from extracting teeth," and it is consequently unlawful at the present time for any person to practice dentistry in this State without the certificate and registration provided for in the Act.

Any person who was practicing dentistry in this State at the time of the passage of this Act is entitled to registration and to the certificate, upon his application to the Board and presenting his properly verified statement, whether such application be made within six months after the passage of the Act or at any subsequent time.

The six months limitation on license provided for in the Act was intended merely to avoid the hardship which would result to practicing dentists if an immediate registration were required and applied only to such dentists as were practicing their profession in this State at the time.

The failure of such dentists to register within the time allowed by the Act subjected the delinquents to the penalties described by section six of the Act, but no other or different penalties.

POWER OF THE EXAMINERS.

Such failure would not, therefore, work a perpetual forfeiture of the right to practice dentistry in this State, or to register for such practice, nor would it subject the delinquent to the necessity of undergoing an examination for the purpose of registering and obtaining a certificate, for the very good reason that none of those are among the penalties prescribed by the Act for a violation of its provisions in this particular respect. The Board may undoubtedly decline to register a person upon his sworn statement if it be satisfied that, notwithstanding his sworn statement to that effect, he was not practicing dentistry in this State on the twelfth of March, 1885, for his verified statement is only prima facie evidence of the fact that he was so practicing, whereas it is the fact itself which gives him the right to register. But the Board is bound to accept his sworn statement if nothing to the contrary appears.

In this case, however, the truthfulness of plaintiff's statement, as filed, is not questioned, and from the foregoing considerations it appears that he is entitled to registration.

Let the writ of mandate issue as prayed for in the complaint.

"Plaintiff asks that the Board of Examiners be required to enter his registration and issue his certificate *nunc pro tunc* as of the day on which his application and statement were filed, so that he may be protected from criminal prosecution for practicing dentistry in the meantime, but I am satisfied that his application, since it is conceded to have been made in good faith, is of itself a sufficient protection, from the date of its filing to the present time, and that no such order is necessary."

Since the decision of the Court in the case of Ira D. Card vs. the Board of Examiners, thirty-five persons have been registered, twenty-one diplomas have been indorsed as satisfactory since the last report, and three persons have received certificates on examination.

A list of all whose names have been registered, and of all whose diplomas have been indorsed as satisfactory to the Board, and of all who have received certificates by examination of the Board, is hereto annexed.

On August 1, 1886, a circular was issued by the Board announcing that the regular meeting for examination of candidates would be held on November 2, 1886, and giving all necessary information regarding the same. These were distributed over the entire State, and every means possible used to bring the matter to the attention of the profession, but no candidates presented themselves.

At this meeting the following resolution was adopted:

Resolved, That the annual meeting be changed from the first Tuesday in November to the Third Tuesday in October of each year.

At this meeting the election of officers was held for the ensuing year.

Thos. Morffew, D.D.S., of San Francisco, was elected President, and C. W. Hibbard, D.D.S., of San Francisco, was elected Secretary.

The following are the present officers and members of the Board:

Thos. Morffew, D.D.S., of San Francisco, President.
E. W. Biddle, Healdsburg.
J. S. Crawford, Los Angeles.
S. S. Southworth, Sacramento.
S. W. Dennis, M.D., D.D.S., San Francisco.
W. J. Younger, M.D., San Francisco.
C. W. Hibbard, D.D.S., San Francisco, Secretary.

The following is an account of all money received and disbursed by the Board since the last report:

RECEIPTS.

For registration, $1 for each, thirty-five persons	$35 00
Received from indorsement of diplomas, $10 for each applicant, twenty-one applicants	210 00
From examinations, $10 for each applicant, one applicant	10 00
Balance on hand at last report	356 45
Total	$611 45

DISBURSEMENTS.

Printing	$31 00
Stationery	37 45
Traveling expenses of members	256 00
Necessary clerical expenses	62 50
Costs of Court; Card suit	16 00
Rent of hall for annual meeting	12 00
Attorneys' fees	50 00
Incidentals	11 00
Total	$475 95
Balance in hand of Secretary	135 50

All persons who are now practicing dentistry in this State, and who have not registered or received a certificate from this Board, in pursuance of the Act mentioned, are violating the law, and are subject to arrest and a fine of $50 to $200, or imprisonment for six months in the county jail, for each and every offense.

It will be necessary for all persons who may hereafter desire to engage in the practice of dentistry in this State to secure a certificate from this

Board, upon diploma from a reputable dental college, or after examination in dental surgery, as required by the Act of March 12, 1885.

In examining applicants for certificates to practice dentistry, the Board will examine in the branches of anatomy, histology, physiology, pathology, materia medica, surgery, therapeutics, chemistry, operative dentistry, prosthetic dentistry, clinical operative dentistry, and irregularities. All examinations must be in writing, and the applicant must receive a general average of seventy-five per cent to entitle him to a certificate.

We recommend that Section 6 of the dental law be amended, so that the informer of violations of the Act, "in cases of conviction," shall receive one half of the fine imposed.

All of which is respectfully submitted.

Board of Dental Examiners of the State of California.

THOS. MORFFEW, President.

C. W. Hibbard, Secretary.

December 1, 1886.

CHAPTER •CXXVII.

An Act to Insure the Better Education of Practitioners of Dental Surgery, and to Regulate the Practice of Dentistry in the State of California.

[Approved March 12, 1885.]

The People of the State of California, represented in Senate and Assembly, do enact as follows:

SECTION 1. It shall be unlawful for any person, who is not at the time of the passage of this Act engaged in the practice of dentistry in this State, to commence such practice, unless he or she shall have obtained a certificate, as hereinafter provided.

SEC. 2. A Board of Examiners, to consist of seven practicing dentists, is hereby created, whose duty it shall be to carry out the purposes and enforce the provisions of this Act. The members of said Board shall be appointed by the Governor from the dental profession of the State at large. The term for which the members of said Board shall hold their offices shall be four years, except that two of the members of the Board, first to be appointed under this Act, shall hold their office for the term of one year, two for the term of two years, two for the term of three years, and one for the term of four years, respectively, and until their successors shall be duly appointed and qualified. In case of a vacancy occurring in said Board, such vacancy shall be filled by the Governor, in conformity with this section.

SEC. 3. Said Board shall choose one of its members President, and one the Secretary thereof, and it shall meet at least once in each year, and as much oftener and at such times and places as it may deem necessary. A majority of said Board shall, at all times, constitute a quorum, and the proceedings thereof shall, at all reasonable times, be open to public inspection.

SEC. 4. Within six months from the time this Act takes effect, it shall be the duty of every person who is now engaged in the practice of dentistry in this State, to cause his or her name and residence or place of business to be registered with said Board of Examiners, who shall keep a book for that purpose. The statement of every such person shall be verified under oath before a Notary Public or Justice of the Peace, in such manner as may be prescribed by the Board of Examiners. Every person who shall so register with said Board as a practitioner of dentistry shall receive a certificate to that effect, and may continue practice as such without incurring any of the liabilities or penalties provided in this Act, and shall pay to the Board of Examiners for each registration a fee of one dollar. It shall be the duty of the Board of Examiners to forward to the County Clerk of each county in the State, a certified list of the names of all persons residing in his county who have registered in accordance with the provisions of this Act, and it shall be the duty of all County Clerks to register such names in a book to be kept for that purpose.

SEC. 5. Any and all persons, who shall so desire, may appear before the Board at any of its regular meetings, and be examined with reference to their knowledge and skill in dental surgery; and if the examination of any such person or persons shall prove satisfactory to said Board, the Board of Examiners shall issue to such persons as they shall find to possess the requisite qualifications, a certificate to that effect, in accordance with the provisions of this Act. Said Board shall also indorse as satisfactory diplomas from any reputable dental college, when satisfied of the character of such institution, upon the holder furnishing evidence, satisfactory to the Board, of his or her right to the same, and shall issue certificates to that effect within ten days thereafter. All certificates issued by said Board shall be signed by its officers, and such certificates shall be prima facie evidence of the right of the holder to practice dentistry in the State of California.

SEC. 6. Any person who shall violate any of the provisions of this Act, shall be deemed guilty of a misdemeanor, and, upon conviction, may be fined not less than fifty dollars, nor more than two hundred dollars, or confined six months in the county jail, for each and every offense. All fines recovered under this Act shall be paid into the Common School Fund of the county in which such conviction takes place.

SEC. 7. In order to provide the means for carrying out and maintaining the provisions of this Act, the said Board of Examiners shall charge each person applying to or appearing before them for examination for a certificate of qualifications, a fee of ten dollars, which fee shall be in no case returned; and out of the funds coming into the possession of the Board from the fees so charged, and penalties received under the provisions of this Act, all legitimate and necessary expenses incurred in attending the meetings of said Board shall be paid; and no part of the expenses of the Board shall ever be paid out of the State Treasury. All moneys received in excess of expense above provided for, shall be held by the Secretary of said Board as a special fund for meeting the expenses of said Board, and carrying out the provisions of this Act, he giving such bonds as the Board shall from time to time direct; and said Board shall make an annual report of its proceedings to the Governor by December first of each year, together with an account of all moneys received and disbursed by them pursuant to this Act.

Sec. 8. Any person who shall receive a certificate from said Board to practice dentistry, shall cause his or her certificate to be registered with the County Clerk of the county in which such person may reside, and the County Clerk shall charge for registering such certificates a fee of one dollar. Any failure, neglect, or refusal on the part of any person holding such certificate to register the same with the County Clerk as above directed, for a period of six months, shall work a forfeiture of the certificate; and no certificate, when once forfeited, shall be restored, except upon the payment to the said Board of twenty-five dollars as a penalty for such neglect, failure, or refusal.

Sec. 9. Any person who shall knowingly and falsely claim or pretend to have or hold a certificate of license, diploma, or degree, granted by any society organized under and pursuant to the provisions of this Act, or who shall falsely, and with intent to deceive the public, claim, or pretend to be a graduate from any incorporated dental college, shall be deemed guilty of a misdemeanor, and shall be liable to the same penalty as provided in section six.

Sec. 10. Nothing in this Act shall be so construed as to prohibit any practicing physician from extracting teeth.

Sec. 11. This Act shall take effect immediately.

OFFICIAL REGISTER

OF DENTISTS HOLDING CERTIFICATES FROM THE BOARD OF DENTAL EXAMINERS IN THE STATE OF CALIFORNIA.

Alameda County.

Beals, C. H.	Oakland.
Bills, Albert V. (diploma indorsed)	Oakland.
Belfills, E. K.	Oakland.
Burnett, E. T.	Oakland.
Brooks, W. E.	Oakland.
Bishop, M. E.	Alameda.
Bates, C. P.	Berkeley.
Barradas, F. C.	San Leandro.
Bernard, Geo. (diploma indorsed)	Livermore.
Cole, R. E.	Oakland.
Craig, W. H.	Oakland.
Carpenter, O.	Oakland.
Cool, R. H.	Oakland.
Cornwall, A.	Oakland.
Cool, G. W.	Oakland.
Danziger, G. A.	Oakland.
Dimmick, J.	Oakland.
Dunn, R. K.	Oakland.
Edwards, B. F.	Oakland.
Gilman, S. M.	Oakland.
Garcia, M. J.	San Leandro.
Halsey, I. S.	Oakland.
Hall, T. W.	Oakland.
Hutton, J. A. D.	Berkeley.
Hempstead, J. E.	Oakland.
Hackett, S. A.	Oakland.
Kreichbaum, G. H.	Oakland.
Koehler, F.	Sunol.
Kenworthy, L.	San Leandro.
Lane, C. S.	Oakland.
Lee, E. M.*	East Oakland.
Luce, G. J.	Oakland.
Meek, R. W.	Oakland.
Morries, A. H.	Oakland.
Morris, T. H.	Oakland.
Merriman, A. F.	Oakland.
Merriman, A. F., Jr.	Oakland.
Petton, L. D.	Oakland.
Rodolph, C. F.	Oakland.
Rabe, J.	Oakland.
Stoakes, F. C.	San Leandro.
Simmons, W. H.	Oakland.
Schmidt, G. L.	Oakland.
Schumer, A. C.	Oakland.
Saxe, Frederic J. (diploma indorsed)	Oakland.
Savage, S. L.	Livermore.
Tate, S. P., Jr.	Oakland.
Titcomb, C. B.	Oakland.
Wilson, O. F.	Oakland.
Waltz, G. W.	Oakland.

---

* Deceased.

Amador County.

Gray, John	Ione.
Gabbs, E. S.	Sutter Creek.
La Due, W. K.	Plymouth.

Butte County.

Crum, T. A.	Chico.
McFadgen, A.	Chico.

Norman, George H.	Gridley.
Read, W. S.	Oroville.
Stewart, Robert (diploma indorsed)	Chico.
Vanaukin, J. R.	Chico.
Ward, S. T.	Chico.
Wasley, D. W.	Chico.

COLUSA COUNTY.

Ciley, J. L.	Little Stony.
Pirkey, M.	Willows.
Smith, Frank Z.	Colusa.
Washer, W. A.	Williams.

CONTRA COSTA COUNTY.

McCabe, Ed.	Brentwood.
Moore, J. S.	Martinez.
Moore, J. S., Jr.	Martinez.

CALAVERAS COUNTY.

Oviatt, S. M.	San Andreas.
Smith, C. D.	Angels Camp.
Turner, Peter T.	Murphy's.

EL DORADO COUNTY.

Stone, W. W.	Placerville.
Tyson, Charles	Placerville.
Walk, Charles L.	Placerville.

FRESNO COUNTY.

Cooper, J. C.	Fresno.
Doyle, B. W.	Fresno.
Hunsaker, A. L.	Fresno.
Hendricks, H. T.	Kingsburg.
Prather, W. J.	Fresno.

HUMBOLDT COUNTY.

Beverton, D. W.	Eureka.
Ingersoll, A. E.	Eureka.
O'Conner, D. L.	Blocksburg.
Ray, C. B.	Arcata.
Thompson, R. P.	Ferndale.
Weldon, J. A.	Eureka.
Weldon, E. J.	Eureka.

KERN COUNTY.

Bonham, J. F.	Bakersfield.

LOS ANGELES COUNTY.

Adams, S. H.	Los Angeles.
Bird, W. R.	Los Angeles.
Baldwin, C. V.	Los Angeles.
Burgess, R. F.	Santa Ana.
Cunningham, R. G.	Los Angeles.
Crawford, J. S.	Los Angeles.
Case, Isaac M. (diploma indorsed)	Pomona.
Dunn, J. H.	Pomona.
French, L. W.	Los Angeles.
Harlan, C. N.	Los Angeles.
Hubbell, A. B.	Los Angeles.
Hollingsworth, J. W.	Los Angeles.
Hollingsworth, M. W.	Los Angeles.
Janes, R. K.	Pasadena.
Masser, W. H.	Los Angeles.
McCoy, John C.	Orange.
Millard, G. A.	Compton.
Palmer, Frank M.	Los Angeles.
Stephens, Frank E.	Los Angeles.
Stephens, C.	Los Angeles.
Spinks, M. E.	Los Angeles.

Smith, Uriel	Los Angeles.
Small, H. E.	Los Angeles.
Tolhurst, S. H.	Los Angeles.
Tolhurst, G. W.	Los Angeles.
Todd, Baxter	Los Angeles.
Vanderlip, John F.	Santa Ana.
Vanderlip, Geo. G.	Santa Ana.
Von Bonhurst, C. G.	Pomona.
White, J. M.	Los Angeles.
Wells, L. W.	Los Angeles.
Wilder, D. R.	Los Angeles.
Young, John E.	Santa Ana.
Shoemaker, R. H.	San Gabriel.

Lake County.

Gilstrop, J. W.	Kelseyville.
Hutchins, J. M.	Lakeport.
Redmond, J. J.	Middletown.

Marin County.

Thomas, H. B.	San Rafael.

Modoc County.

Camicia, L. S.	Lookout.
Epperson, J. H.	Alturas.
Taylor, J. M.	Alturas.

Mendocino County.

Card, Ira D.	Ukiah.
Fare, John	Westport.
Hoffman, M.	Ukiah.
Holmes, C. A.	Mendocino City.
Hogshead, W. H.	Ukiah.
Mitchell, Hiram H.	Ukiah.
Mitchell, Marting N.	Ukiah.
McCowan, G.	Ukiah.
Willsey, T. F.	Coveto.

Merced County.

Prather, W. R.	Merced.
Wassman, Max	Merced.

Monterey County.

Barden, W. N.	Salinas.
Lemon, Geo. B.	Salinas.

Napa County.

Davis, C. E.	St. Helena.
Farman, C. H.	Napa.
Hackett, F. M.	Napa.
Hackett, C. C.	Napa.
Key, J. W.	Calistoga.
Porter, E. M.	Napa.
Porter, S. P.	Napa.
Root, W. A.	St. Helena.
Sabin, C. R.	St. Helena.

Nevada County.

Carr, G. B.	Grass Valley.
Chapman, A.	Nevada City.
Chapman, Mrs. N. E.	Nevada City.
Eastman, W. W.	Nevada City.
Hays, Irwin W.	Grass Valley.
Harris, S. M.	Grass Valley.
Harris, M. P. (diploma indorsed)	Grass Valley.
Lancaster, C. E.	North San Juan.
Martin, S. D.	Nevada City.
McIntyre, T. W.	Nevada City.
Pennington, A. R.	Nevada City.

Robinson, F. A.	Nevada City.
Relly, J. W.	Grass Valley.
Ward, S. T.	Nevada City.

PLUMAS COUNTY.

Cate, David B. (diploma indorsed)	Quincy.

PLACER COUNTY.

Hawver, J. C.	Auburn.
Rea, John	Lincoln.
Smith, J. F.	Forest Hill.
Wilson, M. W.	Dutch Flat.

STANISLAUS COUNTY.

Drullard, T. W.	Modesto.
Moad, V. R.	Modesto.
Preshaw, R. G.	Oakdale.

SACRAMENTO COUNTY.

Bates, B. F.	Folsom.
Gardner, Ed.	Sacramento.
Horner, J. Van C.	Sacramento.
Light, W. W.	Sacramento.
Milliken, Chas. T. (diploma indorsed)	Sacramento.
Pierson, H. H.	Sacramento.
Reid, T. B.	Sacramento.
Shaw, I. G.	Sacramento.
Shields, F. M.	Sacramento.
Stephenson, C. H.	Sacramento.
Southworth, S. S.	Sacramento.
Southworth, E. L. (diploma indorsed)	Sacramento.
Tebbets, Frank F.	Sacramento.
Wood, Wm.	Sacramento.

SISKIYOU COUNTY.

Hearn, F. G.	Yreka.
Larrison, Chas. A.	Yreka.
Remington, C. L. (diploma indorsed)	Yreka.
Millbery, Arthur H.	Jordan.

SHASTA COUNTY.

Gleaves, A. D.	Anderson.
La Baru, W. H.	Shasta City.
Manchester, M. R.	Redding.
Tope, John H.	Redding.

SAN DIEGO COUNTY.

Barnes, F. J.	San Diego.
Cave, D.	San Diego.
Gould, H. W.	San Diego.
Gildea, Bernard M. (diploma indorsed)	San Diego.
Harbison, H. R. (diploma indorsed)	San Diego.
Philips, R. F.	San Diego.
Townsend, E. L. (diploma indorsed)	San Diego.
Wasson, John B. (diploma indorsed)	San Diego.

SAN BERNARDINO COUNTY.

Bedford, L. N. (diploma indorsed)	San Bernardino.
Bogart, S. C.	San Bernardino.
Musselman, S.	Cucamonga.
Sylvester, C. W.	Riverside.
Whitlock, Alma	San Bernardino.
Westover, G. C.	Riverside.

SANTA BARBARA COUNTY.

Doulton, G. H.	Santa Barbara.
Dimock, H. C.	Lompoc.
Lee, D. B.	Santa Barbara.

Livermore, Geo. W.	Santa Barbara.
Moore, H. W. (diploma indorsed).	Santa Barbara.
Shrewsbury, N.	Santa Barbara.
Stauffer, H. W.	Santa Barbara.
Van Winckel, H. M.	Santa Barbara.
Yates, Lorenzo G.	Santa Barbara.

SAN MATEO COUNTY.

Decker, John H.	San Mateo.

SANTA CLARA COUNTY.

Argall, Frank L.	San José.
Barker, Albert M.	San José.
Brigham, K. A.	Gilroy.
DeCrow, Warren	San José.
Finnigan, L.	San José.
Fleming, C. K.	San José.
Fisher, Mrs. Minnie	San José.
Gallup, Thos. E.	Santa Clara.
Gaston, W. A.	San José.
Gaston, A. A. (examined by Board)	San José.
Gothard, J. T.	Los Gatos.
Higgins, C. R.	Mountain View.
Hooker, A. O.	San José.
Hall, E. C.	San José.
Holmes, Stephen	San José.
King, J. F.	San José.
Klein, N.	San José.
Knapp, A. R.	San José.
Kingsbury, Wm. B.	Santa Clara.
Ledyard, F. R.	San José.
Rogers, E. P.	Gilroy.
Rhodes, S. R.	San José.
Rogers, F. S.	Gilroy.
Sprake, W. T.	San José.
Spaw, C. R.	San José.
Whipple, T. S.	San José.

SANTA CRUZ COUNTY.

Bliss, Frank W.	Santa Cruz.
Bliss, Charles L.	Santa Cruz.
Butterfield, C. L.	Watsonville.
Gordon, Oscar L.	Santa Cruz.
Kirkpatrick, H. C.	Santa Cruz.
Lundy, E. A.	Santa Cruz.
Libbey, J. L.	Watsonville.
Swain, H. P.	Watsonville.

SAN BENITO COUNTY.

Cooper, Martin S.	Hollister.
Hendricks, John D.	Hollister.
Rubell, W. H.	Bitter Water.

SAN JOAQUIN COUNTY.

Burton, Frank	Stockton.
Davenport, A. C.	Stockton.
Fickett, S. H.	Stockton.
Goodell, L. E.	Stockton.
Ham, W. D.	Lodi.
Henderson, W. R.	Stockton.
Haines, N. J.	Stockton.
Henderson, R. W.	Stockton.
Meseroll, J. M.	Stockton.
Parsons, M. W.	Stockton.
Wallace, W. J.	Stockton.

SOLANO COUNTY.

Harding, W. C.	Suisun.
Moore, W. A.	Benicia.
Pendleton, B. F.	Vallejo.

Shaw, John F.	Vallejo.
Upchurch, N. B.	Vacaville.
Upham, F. F.	Dixon.
Voories, Geo. L.	Vallejo.
Wyatt, M. O.	Dixon.
Stanton, J. C.	Rio Vista.

SIERRA COUNTY.

Chapman, S. A.	Sierra City.
Douglas, G.	Downieville.
Gardiner, Thomas (diploma indorsed)	Downieville.
Porter, J P.	Truckee.

SAN LUIS OBISPO COUNTY.

Brown, W. G.	San Luis Obispo.
Garrison, D. M.	San Luis Obispo.
Nelson, W. H.	San Luis Obispo.

SAN FRANCISCO COUNTY.

Adams, Q. L.	San Francisco.
Austin, H.	San Francisco.
Baynes, H. F. (diploma indorsed)	San Francisco.
Boyd, C. W.	San Francisco.
Bolton, Thomas	San Francisco.
Brewer, B. B.	San Francisco.
Beers, Barrett	San Francisco.
Birge, J. J.	San Francisco.
Blankman, Wm.	San Francisco.
Bunnell, E. F.	San Francisco.
Burns, O. B.	San Francisco.
Blaisdell, John H.	San Francisco.
Burch, Maria A.	San Francisco.
Brown, A. V.	San Francisco.
Bush, Louis	San Francisco.
Bush, Chas. G. (diploma indorsed)	San Francisco.
Blake, A. E.	San Francisco.
Blondin, Arthur	San Francisco.
Blake, Chas. E.	San Francisco.
Bliss, F. A.	San Francisco.
Blood, J. N.	San Francisco.
Bloch, C.	San Francisco.
Bettis, Harry L.	San Francisco.
Boxton, C.	San Francisco.
Botsford, George (diploma indorsed)	San Francisco.
Brewer, F. A.	San Francisco.
Brewer, L. J.	San Francisco.
Brown, W.	San Francisco.
Bryant, William A. (diploma indorsed)	San Francisco.
Chalfant, S. P. (diploma indorsed)	San Francisco.
Caranza, V. A.	San Francisco.
Case, E. G. (examined by Board)	San Francisco.
Clark, Franklin L.	San Francisco.
Cogswell, James L.	San Francisco.
Croome, William	San Francisco.
Case, Charles E.	San Francisco.
Clarke, W. H.	San Francisco.
Cranz, Louis F.	San Francisco.
Conwell, C. C.	San Francisco.
Cochrane, E. O.	San Francisco.
Cummings, J. E.	San Francisco.
Crossett, E. T.	San Francisco.
Craigie, Henry	San Francisco.
Cane, Alfred	San Francisco.
Conradt, J. H.	San Francisco.
Coulsen, N. T. (diploma indorsed)	San Francisco.
Cahill, S. D.	San Francisco.
Crossett, Truman	San Francisco.
Currah, J. M.	San Francisco.
Card, Wm. H.	San Francisco.
Chase, Maurice	San Francisco.
Christopher, T.	San Francisco.
Christensan, G. A.	San Francisco.
Cutlar, R.	San Francisco.

Cool, W. P.	San Francisco.
Casselly, John P.	San Francisco.
Dennis, S. W.	San Francisco.
Denther, Ed. F.	San Francisco.
Drucker, Wm. E.	San Francisco.
Decker, Chas. W.	San Francisco.
Duckett, C. S.	San Francisco.
Drucker, Geo. J.	San Francisco.
Dunbar, L. L.	San Francisco.
Davis, Henry C.	San Francisco.
Dyer, J. J.	San Francisco.
Dutch, William	San Francisco.
Dean, G. S.	San Francisco.
Dempster, James	San Francisco.
Dean, C. O.	San Francisco.
Esterle, Albert M. (diploma indorsed)	San Francisco.
Emerson, Ed. W.	San Francisco.
Edwards, Jas. W.	San Francisco.
Eisen, Ed. G.	San Francisco.
Fitzpatrick, W. E. (diploma indorsed)	San Francisco.
Fox, H. B.	San Francisco.
Ferguson, F. H.	San Francisco.
Fox, J. M.	San Francisco.
Fuller, C. H.	San Francisco.
Gore, Arthur (examined by Board)	San Francisco.
Gorton, C. D.	San Francisco.
Goe, Sam'l E.	San Francisco.
Goddard, C. L.	San Francisco.
Gonzales, I. T.	San Francisco.
Gabbs, M. F.	San Francisco.
Griswold, W. F.	San Francisco.
Graves, W. L.	San Francisco.
Gunzburger, B. M.	San Francisco.
Griffiths, Allen	San Francisco.
George, E.	San Francisco.
Hofleng, Fred.	San Francisco.
Hardcastle, Geo.	San Francisco.
Hill, Alfred S.	San Francisco.
Hibbard, C. W.	San Francisco.
Heino, Julius	San Francisco.
Hatch, J. A.	San Francisco.
Hill, Albert B.	San Francisco.
Hill, Thomas L.	San Francisco.
Haselhurst, A. O.	San Francisco.
Hill, Alfred L.	San Francisco.
Haines, B. W.	San Francisco.
Harrison, E. L.	San Francisco.
Hastings, Robert	San Francisco.
Iglehart, T. M.	San Francisco.
Jacobs, B. R.	San Francisco.
Jennin, E. L.	San Francisco.
Kauffung, Louis H.	San Francisco.
Knox, Henry E.	San Francisco.
King, L. A.	San Francisco.
Kemp, Van Eee, Fred.	San Francisco.
Knowles, S. E.	San Francisco.
King, W. J.	San Francisco.
Knowles, Wm. A.	San Francisco.
Knowlton, John S.	San Francisco.
Lord, F. F.	San Francisco.
Lubbock, W. C.	San Francisco.
Lee, L. A.	San Francisco.
Lundborg, J. A. W.	San Francisco.
Lightbody, H.	San Francisco.
Leek, Geo. W.	San Francisco.
Little, J. R.	San Francisco.
Lord, Mrs. C. B.	San Francisco.
Leek, J. G.	San Francisco.
Locke, C. W.	San Francisco.
Lord, C. C.	San Francisco.
Lawrance, Geo. O.	San Francisco.
Lightcap, Samuel E.	San Francisco.
Morffew, Thomas	San Francisco.
Moulton, Calvin R.	San Francisco.
Myers, Oliver P.	San Francisco.

Monroe, Geo.	San Francisco.
Maunder, Phillip	San Francisco.
Moore, C.	San Francisco.
Morton, Henry R.	San Francisco.
McKenzie, A. W.	San Francisco.
Matthews, James	San Francisco.
Massie, H. C.	San Francisco.
Malech, T. G.	San Francisco.
Morton, H. R., Jr.	San Francisco.
Mancilla, Maguel	San Francisco.
Mendes, Chas.	San Francisco.
Neumann, L.	San Francisco.
Pearce, T. B.	San Francisco.
Price, W. E.	San Francisco.
Park, E. E.	San Francisco.
Peel, Jonathan	San Francisco.
Perry, Chas. A.	San Francisco.
Proll, R. B.	San Francisco.
Plomteaux, H. J.	San Francisco.
Porter, John S.	San Francisco.
Pratt, Frank E.	San Francisco.
Ralls, R. F.	San Francisco.
Rea, C. F.	San Francisco.
Rinebold, J. J.	San Francisco.
Remington, J. W.	San Francisco.
Rau, Henry	San Francisco.
Rietzke, Gustav	San Francisco.
Rankin, J. H.	San Francisco.
Richards, W. H.	San Francisco.
Richards, C. W.	San Francisco.
Robinson, W. H.	San Francisco.
Roberts, S. H.	San Francisco.
Sichel, G. W. (diploma indorsed)	San Francisco.
Schultz, E. H.	San Francisco.
Sublett, W. A.	San Francisco.
Salmon, Wm.	San Francisco.
Switser, Anna	San Francisco.
Spear, Thos. R.	San Francisco.
Sylvester, H.	San Francisco.
Smith, M. E.	San Francisco.
Schneider, Joseph	San Francisco.
Simms, Chas.	San Francisco.
Sloat, Chas. F.	San Francisco.
Sullivan, J. P.	San Francisco.
Sichel, Max.	San Francisco.
Swain, E. M.	San Francisco.
Stevens, Henry H.	San Francisco.
Sanger, I.	San Francisco.
Spence, Stuart J.	San Francisco.
Sheets, H. Clay	San Francisco.
Sandford, L. N.	San Francisco.
Stanley, W. H.	San Francisco.
Sullivan, Maurice J.	San Francisco.
Savage, Henry	San Francisco.
Turner, H. C.	San Francisco.
Turner, W. A.	San Francisco.
Trueman, H. G.	San Francisco.
Thrall, H. H.	San Francisco.
Twist, J. F.	San Francisco.
Thrailkill, Wm. O.	San Francisco.
Teague, L. A.	San Francisco.
Trumpour, J. P.	San Francisco.
Teague, Fred	San Francisco.
Urmy, H. N.	San Francisco.
Verrinder, A. E. (diploma indorsed)	San Francisco.
Verrinder, R. F. (diploma indorsed)	San Francisco.
Van Orden, L.	San Francisco.
Vidaver, N. J.	San Francisco.
Van Crombrugghe, A.	San Francisco.
Winter, J. W.	San Francisco.
Winter, W. G. (diploma indorsed)	San Francisco.
Wilson, C. H.	San Francisco.
Wilbert, J. L.*	San Francisco.
Wood, Andrew B.	San Francisco.

---

* Deceased.

Warner, A.	San Francisco.
Wade, Thos.*	San Francisco.
Whitcomb, N. T.	San Francisco.
Young, H. G.	San Francisco.
Younger, W. J.	San Francisco.
Younger, Ed. A.	San Francisco.

---

* Deceased.

SONOMA COUNTY.

Biddle, E. W.	Healdsburg.
Caldwell, C. L.	Santa Rosa.
Cook, W. E.	Healdsburg.
Caldwell, F. M.	Santa Rosa.
Cole, Hiram	Santa Rosa.
Coomes, A. M.	Cloverdale.
Eshbach, D. M.	Sonoma.
Galbraith, M. D. (diploma indorsed)	Cloverdale.
Huebner, O. C.	Healdsburg.
Krueger, O. F.	Healdsburg.
Lovejoy, S. E.	Petaluma.
Lovejoy, George E.	Petaluma.
McLain, A. F.	Santa Rosa.
Perkins, C. O.	Petaluma.
Reed, Charles W.	Santa Rosa.
Savage, C. W.	Santa Rosa.
Saul, George M.	Santa Rosa.
Stone, John T.	Santa Rosa.
Wiley, J. N.	Santa Rosa.

TRINITY COUNTY.

Spratt, C. W.	Weaverville.

TUOLUMNE COUNTY.

Menendez, I. A.	Sonora.
Menendez, Henry	Sonora.

TEHAMA COUNTY.

Barrett, C. J.	Red Bluff.
Fuller, F. N.	Red Bluff.
Sehorn, W. A.	Red Bluff.

TULARE COUNTY.

Asay, J. L.	Visalia.
Asay, C. E.	Visalia.
Cooper, E. M.	Visalia.
Hunsaker, G. W.	Tulare.
Key, T. B.	Tulare.
Martin, Todd	Tulare.

VENTURA COUNTY.

Hedrick, Lyman	San Buenaventura.
Stuart, S. L.	San Buenaventura.
Staire, J. M. (diploma indorsed)	San Buenaventura.

YOLO COUNTY.

Dick, A. N.	Woodland.
Holmes, L. B.	Woodland.
Hodgen, I.	Woodland.
Musselman, D.	Madison.

YUBA COUNTY.

Boyd, George H.	Marysville.
Jewett, Stanley	Marysville.
Smith, J. B. M.	Marysville.
Walker, John D.	Hansonville.
Walker, Albin J.	Hansonville.

SEVENTEENTH REPORT

OF THE

BOARD OF DIRECTORS AND OFFICERS

Of the California Institution for the Education of the

DEAF AND DUMB, AND THE BLIND,

FOR THE

Twenty-four Months ending June 30, 1886.

SACRAMENTO:
STATE OFFICE........JAMES J. AYERS, SUPT. STATE PRINTING.
1886.

BOARD OF DIRECTORS.

R. A. REDMAN, President	Oakland.
H. A. PALMER, Vice-President	Berkeley.
E. H. WOOLSEY	Oakland.
GEORGE H. ROGERS	San Francisco.
T. A. LORD	San Francisco.
W. L. PRATHER	Secretary and Treasurer.

OFFICERS OF THE INSTITUTION.

PRINCIPAL.

WARRING WILKINSON, M.A.

TEACHERS OF THE DEAF AND DUMB,

GEORGE B. GOODALL,
HENRY FRANK,
DOUGLAS TILDEN,
Miss ANNA B. CARTER,
THEOPHILUS d'ESTRELLA,
Miss M. A. DUTCH,
Miss K. A. CRANDALL.

TEACHER OF ARTICULATION,

N. F. WHIPPLE.

TEACHER OF DRAWING,

THEOPHILUS d'ESTRELLA.

TEACHERS OF THE BLIND,

CHARLES T. WILKINSON, Miss M. S. DAY.

TEACHER OF MUSIC,

GEORGE B. GOODALL.

Dr. I. E. NICHOLSON	Physician.
W. E. ZANDER	Clerk.

MATRONS,

Mrs. H. B. WILLARD,
Miss J. OSGOOD,
Miss M. J. WISEMAN.

E. P. PIKE	Foreman Carpenter Shop.
E. R. CARROLL	Foreman Printing Office.
FRED. HANSEN	Engineer

REPORT.

Office of the California Institution for the
Education of the Deaf and Dumb, and the Blind,
Berkeley, November 18, 1886.

To his Excellency George Stoneman, *Governor:*

Sir: The Directors of the Institution for the Education of the Deaf and Dumb, and the Blind, respectfully submit herewith their report concerning the important interest intrusted to their charge. The period under review embraces the two years ending June 30, 1886. During this time there have been under instruction one hundred and eighty-six pupils. Of this number twenty-nine have been graduated and discharged, and one has died; thirty-four have been admitted, leaving on the rolls June 30, 1886, one hundred and fifty-six. Since the opening of the Fall term there have been admitted thirteen new pupils.

The excellent health enjoyed by the members of this large household gives the best proof of the judicious care exercised and the diet and regimen prescribed for these wards of the State by the officers in immediate charge. The location and admirable sanitary arrangements of the buildings are also entitled to no small share of the credit due to this fortunate condition of things.

For special details concerning the movement of pupils, the conduct of the schools, and the internal administration of affairs, we respectfully ask attention to the report of the Principal, submitted herewith. Taken in connection with the carefully prepared dissection of accounts, and the balance sheet of the Treasurer, it exhibits the varied and busy life of the household, and the cost of maintaining it. It will be seen that here are combined the teaching force, discipline, and apparatus of a first class school; the tools, machinery, and instruction of a technical school; the costly instruments, supplies, and teaching of an art and music department, with all the features of a well regulated home for the domestic life of these unfortunates who have to spend so many years removed from the family fireside. It is no wonder that such institutions are and always must be among the most costly departments of public instruction, but it is believed that no schools yield so handsome returns for the benefits conferred, inasmuch as we take worthless, often dangerous material, and convert it into good citizenship and valuable productive force. It is hardly fair, therefore, to class schools of this kind with the charities of the State, any more than the University, the Normal School, or common schools. If to the education of the deaf and blind are added food, sometimes clothing, and additional care, it is a difference only in degree, not in kind. All forms of education are part of the firm and broad foundation which the State lays for its superstructure of welfare and prosperity.

This institution has never had a deficit to be made good by the Legislature, and the Treasurer's statement for the past two years shows the same favorable condition of affairs. The total receipts and expenditures, in brief, have been as follows:

Receipts.

From State appropriation for fiscal year ending June 30, 1885	$43,999 99
From State appropriation for fiscal year ending June 30, 1886	45,725 00
From Principal, two years to June 30, 1886	3,171 20
Total receipts	$92,896 19

Disbursements.

Current expenses as per Treasurer's statement and Principal's dissections	$90,373 20
Salary Secretary and Treasurer for two years	1,000 00
Total disbursements	$91,373 20

By means of the appropriations made for specific purposes by the last Legislature, the Board has been enabled to carry out and perfect many improvements which have long been needed, and to put the grounds in such shape as to comport with the dignity of the State and the beauty of the site.

A new and substantial fence has been constructed, a handsome stable is nearly completed, and a gymnasium has been fitted up with admirable apparatus. A supply of water is now being developed with a gratifying prospect of success.

For the expenditures involved in these various improvements, your Excellency is respectfully referred to the Treasurer's balance sheet. In no case has the appropriation been exceeded, and yet everything has been done in the most substantial manner.

In response to an invitation extended by the Board, the National Convention of American Instructors of the Deaf held its eleventh quadrennial meeting at this Institution in the month of July last, continuing in session eight days. We are informed that it was the largest convention of the kind ever held in America. Our own observation bears witness that in intelligence, earnestness, and harmony of action it was an exceptional body of men and women. The proceedings were characterized by unusual dignity and singleness of purpose, and cannot fail to be of profit to the profession so largely represented. The holding of this Convention in California was a compliment to the Institution and the State, an honor which the Directors gratefully appreciate.

The Board respectfully asks the favorable consideration of the Legislature to the recommendations of the Principal for the raising the roof and completion of the school building as originally designed, the enlargement of facilities of instruction in the Articulation, Mechanical, and Art Departments, and the construction of a conservatory and propagating house, where the pupils may be taught the business of horticulture; also for the painting of the buildings and new laundry machinery, and grading streets.

In conclusion, the Directors desire to thank your Excellency for the kindly interest you have manifested in this Institution by your frequent visits and words of approval, which have cheered the officers and gratified the pupils.

Respectfully submitted.

R. A. REDMAN, President.

REPORT OF THE PRINCIPAL.

To the Board of Directors of the California Institution for the Education of the Deaf and Dumb, and the Blind:

Gentlemen: I herewith respectfully submit the report required by law for the two years ending June 30, 1886:

NUMBER OF PUPILS.

Since the last biennial report, the movement of pupils has been as follows:

On the rolls June 30, 1884:

DEAF AND DUMB.		
Boys	75	
Girls	50	
		125
BLIND.		
Boys	16	
Girls	11	
		27
Total both classes		152

The admissions since same date have been:

DEAF AND DUMB.		
Boys	14	
Girls	12	
		26
BLIND.		
Boys	5	
Girls	3	
		8
Total admissions		34
Total under instruction		186

There have been graduated and discharged:

DEAF AND DUMB.		
Boys	11	
Girls	8	
Died	1	
		20
BLIND.		
Boys	7	
Girls	3	
		10
Total deductions		30
On rolls June 30, 1886		156
Discharged since		4
		152
Admitted since opening of term		13
On rolls November 15, 1886		165

HEALTH.

It is gratifying to report another two years of almost uninterrupted health of both teachers and pupils. No epidemic of any kind has invaded the household, and the ailments that have from time to time occurred have generally been of a trivial character, and have yielded quickly to the remedies applied by the visiting physician. The constant and watchful care of the matrons in charge, has had much to do with this freedom from prolonged sickness. Many a life is lost by failure to detect the first attack of disease. It is not always possible to define or locate a symptom, but by a system of daily inspection and reports, with the prompt attendance of a skilled physician, danger may be generally foreseen and often averted.

We have, however, been made painfully conscious, in one instance, of the utter helplessness of human effort or skill in arresting the progress of disease. During the early part of 1885, Helen Wardlow, a deaf-mute girl, fifteen years of age, began to show symptoms of lung weakness which soon developed into confirmed phthisis. From the first the hereditary taint in her blood—the mother having died of consumption—made recovery hopeless, and neither tender care nor medical skill could do more than smooth her pathway to the grave. Her long illness of over a year was a gentle and painless unloosening of the bonds of life, and her death, which occurred on the third of February, came as a happy ending.

Although not strictly belonging to the period under review, it is also my sad duty to announce the death from abscess of the liver of Mr. George Anton Shoaf, a graduate of this institution who had for two years filled the position of Boys' Supervisor. Mr. Shoaf entered school in the month of November, 1875. He made most creditable progress in his studies, and in 1880 was appointed to a vacant Durham Scholarship. In 1882 he passed his examination at the State University, where he pursued his studies until his junior year, when his pecuniary circumstances led him to accept the office of Supervisor, hoping by private study to graduate at the University within a year or two after his class. He was a fine athlete, excelling in all manly sports, modest and manly in his bearing, upright in life and character, and his death was not only a loss to bereaved friends, but to the cause of deaf-mute instruction, to which it was his intention to devote his energies and talents.

THE SCHOOLS.

The work of the class room has gone steadily on, and as prosperously as could reasonably be expected during the last two years. A goodly number of the pupils have finished the course of study, and gone out into the world to take their place as "bread winners." We have reason to believe that the graduates of this Institution, as a rule, do no discredit to their teachers or themselves. Handicapped as they are and always must be by their misfortune, most of them keep abreast of their fellows, and, if manly worth counts for anything, often win the highest prizes.

I object to the usual measures of success in life being applied to the deaf and the blind. From certain avenues of activity they are necessarily debarred, though sometimes by power of will and aptitude they thrust themselves into positions and professions where least expected. They do not obtain nor seek political preferment, though they vote intelligently. They do not fail for large amounts, pay ten cents on the dollar, and go to Europe on the profits of bankruptcy. I never knew one to keep a "dive," to wreck a bank, or embezzle trust funds and flee to Canada or other countries where there are no extradition treaties. They do not know how to manipulate the stock market nor are they active on the produce exchange. Their merits have no marketable value, nor would they be accepted as collateral security for a loan at the counter of any sound bank or careful money lender; and yet the qualities which the average of educated deaf-mutes possess in great degree, are the measure of a nation's wealth, and constitute its true and permanent sources of prosperity. They are honest, industrious, little given to drink or dissipation, faithful to duty and conscience, happy in harmless pleasures, and good citizens in their relations to family and State. Now and then one takes to evil courses, and drifts into crime or vagrancy, but such rare cases can nearly always be traced to hereditary taint or vicious environment which would require almost superhuman virtue to overcome or resist.

There have been no changes in the corps of teachers since my last report, except the resignations of Mrs. A. R. Goodall, teacher of the primary class in the blind department, whose place has been filled by the appointment of Miss Martha S. Day; and of Mrs. Annie B. Wilkinson, teacher of articulation in the deaf-mute department, where a vacancy still exists, though it is hoped that a competent teacher may soon be obtained for this important adjunct to a well equipped Institution.

The curriculum of study has not been materially altered. The purpose of the Institution is to give a reasonably good English education to the deaf and the blind, who by reason of their misfortune cannot obtain it in the common schools. To this end they are taught the correct use of language, penmanship, arithmetic, history, geography, physiology, and those principles of ethics which are necessary to right thinking and acting. But we are more concerned about making good citizens than the turning out of monstrosities of learning; we seek to develop men and women rather than mere merchants, mechanics, and housemaids; and that is why we think an educational process should embrace something more than the training of the class room. To a symmetrical manhood is needed a trained hand as well as a cultured mind; to this end our pupils spend a portion of each day in learning the fundamental principles of some trade. Whether they shall ever get their living by the particular handicraft they acquire is a matter of little moment. How few men are doing at forty what they expected to do at twenty years of age. Embryo ministers have turned to miners; artists have become artisans; cobblers have become Congressmen; laborers have developed into leaders; the tinker becomes a thinker, the philosopher a pin maker; and so the whirligig of time and circumstance is continually readjusting men to their aptitudes and environment: but conspicuous failures are rarely found among those who have all their mental and physical powers well and evenly cultivated and balanced. The carpenter or machinist may find better and more profitable use for his time and talent than shoving a plane or tending a lathe, but the trained eye and supple fingers go with him and form a part of his permanent equipment for life and labor.

The present urgent need of the Institution development is in the line of its Art and Mechanical departments. For the blind, enlarged facilities for music culture, with the addition of piano tuning, should be given. The experience of the most successful eastern schools points to these employments as best adapted for all those blind persons who can begin early enough, and who have the requisite talent. It is a popular error to suppose that all the blind, simply because they love music and can play the jewsharp, may therefore become expert musicians. Mere loss of sight does not confer talent or genius, but it is true that a good proportion can be educated to a profitable livelihood in this direction.

For the deaf and dumb, the many branches of industry in which freehand and mechanical drawing, painting, modeling, carving, and decoration are essential arts, offer inviting fields for their quick eye and nimble fingers. We have those now connected with the Institution whom it would well pay to give the advantage of foreign travel and instruction. Two of our graduates, now teaching, have developed such talent in drawing and modeling that they ought to be provided with the best facilities for art culture, with a view of becoming the heads of these departments at some future day, and I earnestly recommend that the Board take such action in the matter as the means at its disposal will allow.

The department of articulation also needs better facilities and larger development. The late Convention of American Instructors of the Deaf adopted unanimously the following resolution:

> Whereas, The experience of many years in the instruction of the deaf has plainly shown that among the members of this class of persons great differences exist in mental and physical conditions, and in capacity for improvement, making results easily possible in certain cases which are practically and sometimes actually unattainable in others, these differences suggesting widely different treatment with different individuals; it is therefore
>
> *Resolved*, That the system of instruction existing at present in America commends itself to the world, for the reason that its tendency is to include all known methods and expedients which have been proved to be of value in the education of the deaf, while it allows diversity and independence of action, working at the same time harmoniously, and aiming at the attainment of a common object by all
>
> *Resolved*, That earnest and persistent endeavors should be made in every school for the deaf to teach every pupil to speak and to read from the lips, and that such efforts should only be abandoned when it is plainly evident, after examination by experienced teachers, that the measure of success attainable is so small as not to justify the necessary amount of labor.

To carry out this resolution in good faith and conscientiously, will require quite an addition to the teaching force and considerable expenditure of money, but I am sure the people of California will not begrudge the cost, if it adds to the efficiency of the Institution, or helps to bring our pupils into closer fellowship with their kindred or the world.

THE NATIONAL CONVENTION.

The most notable event since the last report, if not in the history of the Institution, has been the holding of the Eleventh National Convention of American Instructors of the Deaf at Berkeley, beginning Thursday morning, July fifteenth, and closing on the evening of July twenty-second. In many respects this convention was the most remarkable gathering of its kind ever held in America. In mere numbers it far exceeded any previous meeting. Over two hundred and fifty members took part in its deliberations and discussions. Its *personnel* comprised nearly all the most eminent men and women in the profession, while the large attendance of the younger delegates, and the active and intelligent part they played in the proceedings, give bright promise of the future of this beneficent work when the "gray beards" shall have passed away.

Thirty-seven Institutions were represented, embracing the whole area of our country from Maine to Texas, from Georgia to Washington Territory, while Canada, whom we cannot count as foreign, proved her kinship in this labor of love by sending three delegates from the excellent Institution at Belleville, Ontario. Many papers of great value were read and discussed, but the new feature, introduced for the first time at this convention, of Normal School work, will be regarded as a most useful innovation, which will grow in importance with each succeeding meeting. Suggested by Mr. Ely, of Maryland, and wisely intrusted to his energetic superintendence, it more than fulfilled the good results expected from this practical illustration of the class-room and its methods. A full stenographic report was made of the proceedings of this section work, as well as of the ordinary debates of the convention, and it is hoped that the Legislature will make suitable provision for the printing of an extra number of copies.

The holding of this convention in California was an honor which we gratefully appreciate. It taxed to the utmost all our resources in the way of accommodations, but the unavoidable inconvenience and discomfort incident to overcrowding were accepted by our guests with such cheerful equanimity as made the labor of entertaining them a personal privilege rather than a perfunctory duty. And unless "words are meant to conceal thought," the generous expressions of our guests would indicate that California has not suffered in her reputation either for hospitality or her tender care of the unfortunate.

In this connection I wish to acknowledge my obligations to the Directors for their cordial coöperation in all matters pertaining to the comfort and pleasure of the delegates.

IMPROVEMENTS.

The improvements provided for by the last Legislature have either been completed or are in progress. Perhaps the most noticeable is the new fence which has been constructed in place of the unsightly enclosure which had been an eyesore for so many years. The space of five hundred feet immediately in front of the Institution has been filled with a handsome iron fence, resting upon a stone wall with a sixteen-inch granite coping, and entrance, side, and carriage-gates adorned with six massive stone posts. In addition, twenty-two hundred feet of wooden fence have been made of tongued and grooved sheathing in eight-foot panels, with eight-inch posts every twenty-four feet, and set in the most substantial manner. This affords protection to the orchards and gardens of the Institution, and keeps out the marauders, who look upon State fruit and vegetables as public plunder. The whole has been built and painted within the appropriation provided for this purpose.

The grounds have been vastly improved, and for the first time since the erection of the buildings at Berkeley, present a respectable appearance. A broad sidewalk along the whole west frontage of the property has been graded and stopped with heavy curbing, and a stone gutter to carry off the surface water. An extensive system of stone gutters has also been laid within the grounds to prevent the wash and consequent damage to roads and terraces from heavy rains. A granite coping has been set on the retaining walls, so necessary on a sidehill site; the terrace in front of the school building has been covered with rock, and the roads and walks put in good order. A few bits of lawn, so restful to the eye, have been seeded and got into creditable shape, considering the infelicity of the season and the scarcity of water. A very beautiful flag-staff, with a complement of flags, has been erected, by which the Institution is enabled to express its recognition of public events, whether of joy or sorrow. The old site of the burned building has been cleared of the offensive debris, which for ten years has prevented the laying out of a proper playground for the pupils; new plank sidewalks connecting the different departments have been constructed; old trees have been grubbed out and converted into firewood; and the new avenue leading from the gateway has been planted with American elms of fifteen years' growth; and a thousand feet of artificial stone pavement laid, and still we have about a thousand dollars of the appropriation unexpended for improvements in progress or projected.

The long hoped for gymnasium has also been fitted up, and affords the pupils that opportunity for physical development so necessary in growing boys and girls. The room under the refectory, seventy by forty feet, was finished in cement mortar and a good floor laid. The apparatus was made in Boston under the direction of Dr. Sargent, the Superintendent of the Harvard Gymnasium, and as far as it goes is very complete, and admirably adapted to the purpose of a symmetrical, athletic culture. It gives the pupils infinite enjoyment, especially in wet weather.

The stable, also provided for by the last Legislature, is at present writing rapidly approaching completion, and will soon be occupied. It is a handsome wooden structure resting on a solid brick foundation, and not only adds much to the safety and convenience of the stock and farm implements, but is in appearance a creditable addition to the equipment of the Institution.

All these improvements have been kept strictly within the limits of the various appropriations, and it is safe to say that the State has never received more for its money.

WATER SUPPLY.

With the growth of the Institution the need of a larger supply of water is felt more and more, and must be provided for. The spring on the hillside yields about ten thousand gallons a day. It is pure and wholesome water, and should be reserved for household purposes. The garden, the lawns, flowers, and roadways, and the playgrounds, require not less than ten thousand gallons a day during the Summer and Fall months preceding the rainy season. To buy this water at meter rates of the Berkeley Water Company involves very heavy expense, but how to get rid of it has been a serious question. The Legislature made an appropriation of $4,000 for the purpose of developing a supply on the Institution property. A tunnel has been run in the cañon on the southern side of the hill, and it is now in about five hundred feet. A stream, which seems to be permanent, now issues from the mouth with a yield of three thousand two hundred gallons a day. It is believed that the indications of more water justify running the tunnel at least a thousand feet. It is also proposed to sink a ten-inch tube in the bottom of the experimental well in the garden to the depth of one hundred feet, and there is little doubt that a supply of not less than five thousand gallons will be obtained from this source, and the appropriation already made will suffice for both these works now in progress. If the results justify expectation, the water question for many years will be solved.

How to get rid of sewage has for a long time been a serious question with this Institution and its neighbor, the State University. Situated in the town of Berkeley and directly interested in the sanitary welfare of the surrounding community, yet exempt from taxation for town improvements, it seemed only right that the State should help to bear the burden of laying pipes to the bay to carry off the large amount of sewage which must be disposed of. The last Legislature recognized the justice of this claim, and made an appropriation to aid the local authorities in effecting this purpose. The town with commendable promptness voted the necessary money to perfect a system of sewers, and laid a pipe from tide water on Dwight Way to the corner of the Institution grounds; but to make available this outlet, it was necessary to extend a pipe six inches in diameter, a distance of twelve hundred feet diagonally across the Institution grounds to the former debouching point. This work has been done in a very thorough manner, with accurate grade, hand holes every hundred feet, and securely trapped at the upper end so that no gases can escape at the point of connection. From a sanitary point of view this safe and rapid disposal of the sewage is the most important improvement made since the erection of the present buildings.

RECOMMENDATIONS.

I respectfully recommend that an appropriation be asked of the coming Legislature to raise the present school building another story, as was contemplated in the original plan. The additional space is needed for class rooms and especially for an assembly room. The architectural completeness which this improvement would give to the group of buildings is an important though secondary consideration, but the need of a suitable hall where our frequent public exercises may be held is painfully evident to the many friends who from year to year have been crowded out of the dining hall where the annual commencement exercises have been given.

I would also urge the erection of a small conservatory and propagating house where our pupils could be trained to skilled gardening. Perhaps no employment is more suited to the tastes and capacity of a large number of deaf-mutes than horticulture, and in connection with fruit and vine cultivation it is in the line of some of our great State industries.

The washing machine in the laundry has been in constant use for nearly seven years. It has cost nothing for repairs, but now is literally worn out. A new machine is needed, and several other appliances for washing clothes. A thousand dollars is a small sum for this purpose, but it will serve our present and urgent necessities, and I respectfully ask the Board to recommend such an appropriation to the Legislature.

The buildings begin to show the need of paint. The iron work especially is taking hurt, while the wood in many places has a shabby appearance. It is true economy to keep the property of the Institution in good repair, and to this end I recommend that an appropriation of fifteen hundred dollars be asked for to be expended in painting.

The road on the north and west lines of the grounds is in a very bad condition. Some grading will have to be done, and considerable rock to properly macadam the street is needed. For this purpose an appropriation of one thousand dollars is respectfully asked.

For the regular support of the Institution we shall require no increase over the sum appropriated by the last Legislature. The wants of the Institution may be briefly stated:

For current support of the Institution, per annum	$45,750 00
For increassd facilities for articulation department, per annum	2,000 00
For increased facilities in industrial department, per annum	1,000 00
	$48,750 00

SPECIAL APPROPRIATIONS.

For completing the school building	$30,000 00
For propagating house	1,000 00
For laundry machinery	1,000 00
For painting buildings	1,500 00
For grading and macadamizing street	1,000 00

ACKNOWLEDGMENTS.

We should be lacking in gratitude if we did not acknowledge the unfailing kindness and courtesy this Institution and its pupils have received from the officers of the Southern Pacific Railroad Company. Every year a special train has been provided to convey the whole school to and from its annual picnic. Free transportation has been given to those pupils whose friends are too poor to pay the car fare to and from their homes at the Summer vacation, and special favors were granted the delegates at the late convention, which favors largely contributed to the success of that notable gathering.

Dr. R. E. Cole, of Oakland, has continued to give his services as dentist, to the relief of those pupils who were unable to pay, and in their behalf thanks are hereby gratefully tendered.

The Board is also under obligations to Messrs. F. E. Knowles & Co. for six granite gate stops, which these gentlemen gratuitously presented to the Institution. Also to Messrs. Wright and Sanders, who, without charge, supplied plans and specifications for the fence, both wood and iron, which has been built the past year.

The following papers have been sent to the Institution for the use of the pupils, and for which thanks are tendered: "Sacramento Weekly Bee;" "The Los Angeles Censor;" "Deaf-Mute Journal," New York; "The Vis-a-Vis," Columbus, Ohio; "Goodson Gazette," Staunton, Virginia; "Deaf-Mute Advance," Jacksonville, Illinois; Deaf-Mute Hawkeye," Council Bluffs, Iowa; "The Deaf-Mute Mirror," Flint, Michigan; "The Mute Journal," Omaha, Nebraska; "Deaf-Mute Optic," Little Rock, Arkansas; "The Mutes' Companion," Faribault, Minnesota; "The Deaf-Mute Times," Delevan, Wisconsin; "The Kansas Star," Olathe, Kansas; "Daily Paper for Our Little Ones," Rochester, New York; "Our Little People," Philadelphia; "The Texas Ranger," Austin, Texas; "The Deaf-Mute Record," Fulton, Missouri; "The Silent Observer," Nashville, Tennessee; "Deaf-Mute Voice," Jackson, Mississippi; "Deaf-Mute Bulletin," Frederick City, Maryland; "The Register," Rome, New York; "The Tablet," Romney, West Virginia; "The Kentucky Deaf-Mute," Danville, Kentucky; "The Auralist," Chicago, Illinois.

Congratulating the Board upon the prosperous condition of the Institution under their charge, and personally thanking the Directors for the generous coöperation they have extended to me, this report is respectfully submitted.

WARRING WILKINSON,
Principal.

Institution for the Deaf and Dumb, and the Blind,
Berkeley, November 15, 1886.

PRINCIPAL'S DISSECTIONS OF EXPENDITURES FOR TWENTY-FOUR MONTHS ENDING JUNE 30, 1886.

General Fund.

Groceries and Provisions.

Allspice, 5½ pounds	$	82
Ammonia, 3½ dozen quarts	8	70
Bacon, 154 pounds	22	66
Baking powder, 89 pounds	40	05
Bath brick, 5 dozen	3	15
Beans, 2,766 pounds	87	14
Buckwheat, 400 pounds	18	00
Butter, 8,727 pounds	2,338	39
Canned goods, 125 dozen	251	53
Capers, 4 dozen	7	00
Carb. ammonia, 20 pounds	5	20
Carb. soda, 54 pounds	4	32
Cayenne pepper, 20 pounds	8	00
Cheese, 1,451 pounds	230	41
Chicory, 74 pounds	4	81
Chocolate, 70 pounds	21	89
Cinnamon, 55 pounds	11	10
Citron, 48 pounds	12	56
Cloves, 10 pounds	2	30
Cocoanut, 18 pounds	5	40
Coffee, 3,157 pounds	354	68
Cooking wine	24	00
Corn starch, 140 pounds	14	00
Corn meal, 800 pounds	20	00
Crackers, 3,422 pounds	198	20
Cracked wheat, 1,630 pounds	44	76
Cranberries	34	00
Cream tartar, 30 pounds	10	80
Crushed Indian, 120 pounds	10	20
Currants, 570 pounds	43	06
Eggs, 1,097 dozen	311	31
Extracts	42	86
Farina, 84 pounds	5	76
Fish, fresh, 2,244 pounds	137	40
Fish, salt, 1,800 pounds	110	00
Flour, white, 394 barrels	1,863	00
Flour, graham, 9 barrels	39	90
Fruit, dried, 2,896 pounds	213	40
Fruit, fresh	318	96
Gelatine, 11 dozen	16	80
Ginger, 50 pounds	10	00
Hams, 832 pounds	132	88
Hominy, 775 pounds	28	49
Hops, 44 pounds	14	15
Honey, 12 pounds	3	00
Hulled corn	7	50
Lard, 1,810 pounds	217	40
Macaroni, 532 pounds	43	83
Mace, 3 pounds	1	75
Malt, 60 pounds	2	00
Meat, 77,302 pounds	5,975	91
Molasses, 193 gallons	64	84
Mustard, 80 pounds	19	25
Oatmeal, 1,450 pounds	64	50
Olive oil, 18 dozen	87	25
Pearl barley, 255 pounds	12	75
Pepper, black, 102 pounds	18	50
Pease, split, 75 pounds	3	75
Pickles	14	50
Potatoes, 65,082 pounds	620	60
Poultry	161	47
Raisins, 211 pounds	22	74
Rice, 1,400 pounds	84	00
Sago, 120 pounds	6	00
Amount carried forward	$14,493	63

Amount brought forward	$14,493 63	
Saleratus, 36 pounds	2 88	
Sal soda, 3,173 pounds	54 59	
Salt, coarse, 2,558 pounds	12 89	
Salt, table, 4,150 pounds	27 75	
Saltpetre, 20 pounds	3 50	
Sapolio, 26 dozen	26 00	
Sauce, Worcestershire	12 00	
Silicon, 8 dozen	8 00	
Smoked beef, 942 pounds	120 27	
Soap, brown, 7,460 pounds	390 46	
Soap, castile, 1,219 pounds	155 85	
Soap, toilet	16 67	
Sugar, brown, 12,857 pounds	817 97	
Sugar, crushed, 1,375 pounds	120 54	
Sugar, granulated, 4,827 pounds	404 40	
Sugar, powdered, 453 pounds	39 25	
Syrup, 442 gallons	154 71	
Tapioca, 66 pounds	3 35	
Tea, 699 pounds	240 96	
Thyme, sage,, etc.	2 00	
Vegetables	5 85	
Vermicelli, 173 pounds	15 15	
Vinegar, 182 gallons	27 37	
Yeast, compressed	9 20	
		$17,185 19
Salaries and Wages.		
Principal and teachers	$22,702 75	
Physician, clerk, and matrons	7,680 00	
Servants and services	10,788 01	
Gardener	720 00	
Treasurer's salary	1,000 00	
		$42,890 76
Clothing.		
Boots and shoes	$469 41	
Buttons	20 87	
Clothes brushes	15 93	
Collars, paper	24 00	
Combs	6 17	
Dress goods	49 50	
Flannel	5 63	
Hair brushes	7 00	
Handkerchiefs	5 00	
Hats	27 90	
Hose	129 65	
Knitting yarn	9 45	
Marking ink	10 25	
Nail and tooth brushes	17 15	
Overalls	10 00	
Pants	17 00	
Pins and needles	4 60	
Repairing boots and shoes	330 85	
Rubber overshoes	14 75	
Shirts, white and check	168 75	
Shoe laces	11 95	
Silesia	7 21	
Suits of clothes	305 00	
Suspenders	14 25	
Shoe blacking	19 13	
Shoe brushes	24 05	
Thread and cotton	59 62	
Trimmings	10 44	
Underwear	72 12	
		1,867 63
Furniture.		
Baskets	$3 69	
Bedsteads, iron	30 00	
Bed ticks and ticking	29 22	
Blankets	117 00	
Brooms, 22 dozen	68 49	
Carpets and lining	210 45	
Amount carried forward	$458 85	$61,943 58

Amount brought forward	$458 85	$61,943 58
Carpet cleaning	105 12	
Chairs	149 25	
Clocks and repairing	15 50	
Crockery, cutlery, and glassware	568 07	
Curtains and curtain goods	105 92	
Dust and floor brushes	43 60	
Dust pans	7 25	
Feather dusters	33 70	
Gas and lamp chimneys	31 60	
Hair	18 24	
Kitchen utensils	154 04	
Mats, door	40 45	
Meat cutting machine	7 50	
Mattresses and repairing	98 75	
Mop cloths, 21 dozen	47 25	
Mop and brush handles	17 75	
Napkins	57 10	
Pails, wooden	16 25	
Paper bags	4 58	
Papering	329 50	
Preserve jars and cans	3 00	
Quilts	83 12	
Ranges for kitchen	345 00	
Range repairs	67 50	
Repairing furniture and upholstering	53 13	
Repairing sewing machine	1 15	
Scales	235 00	
Scrub brushes	72 86	
Sponge	10 20	
Sheeting	284 24	
Stools	13 00	
String	4 01	
Table cloths	206 31	
Tarleton	1 25	
Towels	82 45	
Toweling	209 11	
Tinware and repairs	56 73	
Wire	1 26	
Wisp brooms	5 00	
Wood bowls, barrel covers, and towel rollers	7 31	
Desks	5 25	
Calico	4 55	
Cooking school, fitting up	175 20	
		4,236 90

Buildings and Repairs.

Belting	$3 64	
Bricks	174 00	
Cement	68 70	
Doors	24 38	
Engine repairs	22 67	
Fire clay	4 00	
Glass and putty	54 35	
Grate bars	2 64	
Gravel	8 00	
Hair for plastering	2 50	
Hardware	387 01	
Laths	32 50	
Lime	71 25	
Lumber	961 25	
Millwork	4 47	
Packing for engines	7 23	
Painting	831 39	
Paints, oils, and brushes	531 13	
Plaster	16 75	
Plumbers' supplies	648 83	
Repairing slate roofs	133 25	
Sand	58 40	
Sewer pipe	401 91	
Tarred paper	1 84	
		4,452 09
Amount carried forward		$70,632 57

Amount brought forward		$70,632 57
Fuel and Lights.		
Candles, 300 pounds	$39 60	
Charcoal	3 20	
Coal, 377 tons	3,790 01	
Coal oil, 330 gallons	85 70	
Cotton waste	7 00	
Gasoline, 6,380 gallons	1,916 82	
Machine oil	41 35	
Matches	14 00	
Wages, engineer	1,800 00	
Wicks, wicking, and tapers	9 50	
Wood	17 00	
		7,724 18
Laundry.		
Baskets	$22 34	
Bluing	13 20	
Brushes	29 70	
Clothespins	1 00	
Irons	4 78	
Pan for ironing furnace	5 00	
Repairing machine	25 50	
Rubber cloth, etc.	10 25	
Sal soda	25 60	
Soap, brown	105 03	
Soap, powdered	332 25	
Starch	96 06	
Wages	1,734 91	
Washboards	1 25	
Wax	8 50	
		2,415 37
Stable and Dairy.		
Barley, 16,632 pounds	$193 01	
Bran, 47,655 pounds	416 44	
Brooms	3 41	
Castor oil, axle grease, etc.	18 98	
Corn, 1,454 pounds	21 95	
Currycombs and brushes	4 09	
Cutting hay	7 00	
Farm implements	30 35	
Harness and repairs	35 00	
Harness oil	5 27	
Hay, 107 tons	1,349 03	
Horse medicine	8 75	
Horse shoeing	116 00	
Middlings, 19,396 pounds	198 68	
Oats, 6,247 pounds	102 98	
Oil meal, 8,458 pounds	131 27	
Pails	3 15	
Pigs	50 00	
Repairing buggies and wagons	135 35	
Straw, 114 bales	55 80	
Wages	1,400 00	
Wheat, 2,783 pounds	40 83	
Whips	3 50	
		4,330 84
Miscellaneous.		
Advertising	$349 05	
Blacksmithing	90 75	
Books, stationery, and school apparatus	435 69	
Blasting powder	9 00	
Beads	8 64	
Bead wire	9 39	
Cartage	19 10	
Christmas expenses	85 99	
Copying press	13 00	
Drugs and medicines	202 50	
Diplomas	17 00	
Directories	5 00	
Draping buildings	32 90	
Electric batteries and supplies	16 60	
Amount carried forward	$1,294 61	$85,102 96

Amount brought forward	$1,294 61	$85,102 96
Expense clerk to city	26 05	
Expense pupils' picnics, parties, etc.	30 30	
Expense pupils to oculist	6 20	
Express charges	272 79	
Ferry	7 55	
Freight on supplies	100 49	
Flue cleaning and repairs	13 00	
Flower pots	7 20	
Fire axes and holders	23 00	
Hand grenades	86 40	
Ice	10 50	
Lye for trees	15 75	
Music for blind	29 48	
Printing	2 50	
Repairing and tuning pianos	11 50	
Rent telephones and service	246 00	
Repairing telephone and telegraph lines	21 10	
Repairing hot air furnace	34 90	
Rubber stamps	3 00	
Stamps and postage	101 25	
Seeds and plants	42 95	
Surgical apparatus and repairs	94 39	
Subscription to "D. & D. Annals"	67 00	
Subscription to newspapers	19 25	
Subscription to magazine for blind	21 00	
Spice mill	7 60	
Safe for office	125 00	
Squirrel exterminator	10 00	
Sewing machine	30 00	
Traveling expenses	16 64	
Telegrams	11 66	
Water (696,329 gallons)	348 13	
Wrapping paper	38 00	
		3,175 19
Industrial Department.		
Bookbinder	$2 62	
Ink fountain	27 50	
Paper	84 44	
Repairs	8 00	
Staples	3 00	
Type	182 84	
Wages foreman printing office	1,027 50	
Wages foreman carpenter shop	1,759 15	
		3,095 05
Total expenditures, General Fund		$91,373 20

SPECIAL APPROPRIATIONS.

Improving Grounds.

Curbing and guttering	$998 29
Flagstaff, flags, rigging, etc.	333 15
Granite, coping, and stone work	1,180 00
Labor	1,039 60
Lime, cement, sand, and gravel	289 50
Lumber	170 04
Repairing roads, rock, etc.	120 00
Sewer pipe	15 36
	$4,145 94

Fitting up Gymnasium.

Apparatus	$450 70
Freight	136 75
Lime and cement	24 25
Lumber	117 50
Plastering	62 75
	$791 95

Illustrative School Apparatus.

Casts and manikin	$60 85
Maps	80 43
Type-writer and cyclostyle	118 00
	$259 28

Repairing and Building Fences.

Iron fence	$2,518 50
Labor	225 50
Painting and materials	208 54
Wooden fence	2,022 97
	$4,975 51

Water Supply.

Candles	$15 00
Labor	935 50
Lumber	124 61
Powder, fuse, etc.	52 36
Tools, sharpening, and repairs	57 58
	$1,185 05

Building Barn and Stable.

Advertising	$37 60

New Bakery and Cooking School.

(Appropriation made 1883.)

Building	$4,280 00
Oven	390 00
Architect's fees	214 00
Plastering second floor	116 00
	$5,000 00

TREASURER'S STATEMENT.

Receipts and Disbursements for the two years ending June 30, 1886.

GENERAL STATEMENT.

	Thirty-sixth Fiscal Year.	Thirty-seventh Fiscal Year.	Total.
Receipts.			
Balance, cash on hand, July 1, 1884 (at last report)			$1,634 45
From appropriation for thirty-fifth fiscal year, balance due			30
From appropriation for support	$43,999 99	$45,725 00	89,724 99
From Principal	1,798 77	1,372 43	3,171 20
From appropriation for improvement of grounds	81 50	4,064 44	4,145 94
From appropriation for bakery and cooking school	5,000 00		5,000 00
From appropriation for fitting up gymnasium		791 95	791 95
From appropriation for repairing and building fences		4,975 51	4,975 51
From appropriation for water supply		1,185 05	1,185 05
From appropriation for illustrative school apparatus		259 28	259 28
From appropriation for barn and stable		37 60	37 60
	$50,880 26	$58,411 26	
Total receipts			$110,926 27
Disbursements.			
General Fund—Salaries and wages	$23,424 46	$24,569 10	$47,993 56
General Fund—Supplies	21,723 74	20,655 90	42,379 64
General Fund—Treasurer's salary	500 00	500 00	1,000 00
For improvement of grounds	81 50	4,064 44	4,145 94
For bakery and cooking school	5,000 00		5,000 00
For fitting up gymnasium		791 95	791 95
For repairing and building fences		4,975 51	4,975 51
For increasing water supply		1,185 05	1,185 05
For illustrative school apparatus		259 28	259 28
For barn and stable		37 60	37 60
	$50,729 70	$57,038 83	
Total disbursements			$107,768 53
Balance, cash on hand, June 30, 1886			3,157 74
			$110,926 27

DETAILED STATEMENT.

GENERAL FUND.

Receipts.	
Balance cash on hand July 1, 1884	$1,634 45
From appropriation for support for two years	89,724 99
From appropriation for thirty-fifth fiscal year, balance due	30
From Principal—cash from pupils, etc.	3,171 20
Total receipts	$94,530 94
Disbursements.	
Salaries and wages	$47,993 56
Supplies	42,379 64
Treasurer's salary	1,000 00
Total disbursements	$91,373 20
Balance cash on hand	3,157 74
Total	$94,530 94

SPECIAL APPROPRIATIONS.

IMPROVEMENT OF GROUNDS FUND.

Appropriation	$5,000 00
Paid for labor and material, as per vouchers	4,145 94
Balance in State Treasury	$854 06

BAKERY AND COOKING SCHOOL FUND.

Appropriation (1883)	$5,000 00
Paid for building, labor, etc., as per vouchers	5,000 00

FITTING UP GYMNASIUM FUND.

Appropriation	$1,000 00
Rebate on freight charges	28 91
Total	$1,028 91
Paid for apparatus, etc., as per vouchers	791 95
Balance in State Treasury	$236 96

REPAIRING AND BUILDING FENCE FUND.

Appropriation	$5,000 00
Paid for material and labor, as per vouchers	4,975 51
Balance in State Treasury	$24 49

INCREASING WATER SUPPLY FUND.

Appropriation	$4,000 00
Paid for labor and material, as per vouchers	1,185 05
Balance in State Treasury	$2,814 95

ILLUSTRATIVE SCHOOL APPARATUS FUND.

Appropriation	$1,000 00
Paid for apparatus, etc., as per vouchers	259 28
Balance in State Treasury	$740 72

BARN AND STABLE FUND.

Appropriation	$5,000 00
Paid for advertising, as per vouchers	37 60
Balance in State Treasury	$4,962 40

TRUST FUNDS.

DURHAM FUND.

Balance cash on hand last report, July 1, 1884	$2,246 63
Received from interest and dividends	5,986 29
Total	$8,232 92

Disbursements.

Paid Durham scholarships	$825 97
Paid for work on grounds	923 85
Paid for oculist's services	390 00
Paid for interest	9 70
Paid Louis Straus Fund (proportion of interest)	600 00
Total disbursements	$2,749 52
Balance cash on hand	5,483 40
	$8,232 92

LIBRARY FUND.

Balance cash on hand last report, July 1, 1884	$1,399 29
Received from interest and dividends	124 27
Total	$1,523 56

Disbursements.

Paid for books, as per vouchers	$55 20
Balance cash on hand	1,468 36
	$1,523 56

LOUIS STRAUS FUND.

Balance cash on hand at last report, July 1, 1884	$589 39
Received from interest and dividends	70 90
Received from Durham Fund (proportion of interest)	600 00
Balance cash on hand	$1,260 35

ORGAN FUND.

Balance cash on hand at last report, July 1, 1884	$1,336 26
Received from interest and dividends	121 21
Balance cash on hand	$1,457 47

CASH BALANCES.

GENERAL FUND.

Cash deposited Union National Bank	$150 50
Sundry warrants held as cash	3,007 24
	$3,157 74

DURHAM FUND.

Cash deposited Union National Bank	$4,246 92
Sundry warrants held as cash	1,236 48
	$5,483 40

LOUIS STRAUS FUND.

Cash deposited Union Savings Bank	$1,260 35

ORGAN FUND.

Cash deposited Union Savings Bank	$1,457 47

LIBRARY FUND.

Cash deposited Union Savings Bank	$1,468 36

MORTGAGE INVESTMENT.

TRUST FUNDS.

Loaned on real estate		$41,000 00
To Horace Gushee	$10,000 00	
To Henri Windel	15,000 00	
To Maus & Straude	16,000 00	
		$41,000 00
From Durham Fund	$36,000 00	
From Louis Straus Fund	5,000 00	
		$41,000 00

W. L. PRATHER,
Secretary and Treasurer.

OAKLAND, CAL., July 1, 1886.

LIST OF PUPILS IN THE INSTITUTION SINCE JULY 1, 1884.

Names.	Towns.	Counties.
Deaf and Dumb—Males.		
Aldersley, Lyell	Napa City	Napa.
Bacigalupi, Fred. L.	San Francisco	San Francisco.
Balaam, Lewis	Visalia	Tulare.
Bean, David M.	San Francisco	San Francisco.
Billings, Charles W.	Oakland	Alameda.
Black, Jos. F.	Livermore	Alameda.
Bucking, George F.	San Francisco	San Francisco.
Burgess, Rybert J.	Etiwanda	San Bernardino.
Butler, Louis L.	Stillwater	Shasta.
Cator, Azro A.	San Francisco	San Francisco.
Christeen, Fred. W.	Benicia	Solano.
Christensen, L. O.	Hollister	San Benito.
Coder, Sherman B.	Ukiah	Mendocino.
Cohn, Max	San Francisco	San Francisco.
Cole, Jay	Alameda	Alameda.
Collischonn, Fred.	Oakland	Alameda.
Connelly, John	San Francisco	San Francisco.
Cotter, William	Haywards	Alameda.
Coulter, Charles B.	San Andreas	Calaveras.
Cushman, Ira D.	Georgetown	El Dorado.
De Wolf, Joseph	San Francisco	San Francisco.
Dilke, John T.	Sacramento	Sacramento.
Dinsmore, Bruce	Clipper Gap	Placer.
Dobner, Harry	Anaheim	Los Angeles.
Dugan, Edward	Janesville	Lassen.
Egan, William	San Francisco	San Francisco.
Ewing, William	Walla Walla	Washington Territory.
Funkenstein, Leon	San Francisco	San Francisco.
Gale, William S.	Vallejo	Solano.
Garrido, Francisco	San Francisco	San Francisco.
Goodrich, Doney H.	Geyserville	Sonoma.
Gross, Charles A.	Stockton	San Joaquin.
Hadlock, Hathron	Berkeley	Alameda.
Hannah, Andrew	Mendocino City	Mendocino.
Hatch, Joseph	Redding	Shasta.
Hatton, J. S.	Napa City	Napa.
Heckman, Fred. W.	San Francisco	San Francisco.
Hoke, Harmon A.	West Butte	Sutter.
Hoffman, Edward	San Francisco	San Francisco.
Holman, Willis G.	Linden	San Joaquin.
Horn, Sigmond	San Francisco	San Francisco.
Howson, Jas. W.	Sacramento	Sacramento.
Isert, Gustav	San Francisco	San Francisco.
Jacob, Isadore H.	San Francisco	San Francisco.
Johnson, James H.	Madison	Yolo.
Kaiser, George H.	Vallejo	Solano.
Kavanaugh, William J.	Alameda	Alameda.
Lake, Frank	Santa Cruz	Santa Cruz.
Lambert, Norman	Carpenteria	Santa Barbara.
Laughlin, Joseph	Los Angeles	Los Angeles.
Lewis, Beverley	Tracy	San Joaquin.
Lewis, James	Capay	Yolo.
Lipsett, Robert A.	San José	Santa Clara.
Lohmeyer, Ed. W. F.	San Francisco	San Francisco.
Love, Dugald M.	Antioch	Contra Costa.
McCarty, W. E.	San Francisco	San Francisco.
McQuillan, Charles	San Francisco	San Francisco.
Miller, Charles F.	Jenny Lind	Calaveras.
Miller, Joseph	San Francisco	San Francisco.
Morse, Elmer R.	Berkeley	Alameda.
Nordyke, Isaac F.	Oakland	Alameda.
O'Brien, Daniel	San Francisco	San Francisco.
O'Malley, John M.	Washington Corners	Alameda.
O'Rourke, James P.	San Francisco	San Francisco.

List of Pupils—Continued.

Names.	Towns.	Counties.
Pomber, Juan M.	Castroville	Monterey.
Price, Edmund M.	Salinas City	Monterey.
Rafetto, Frank	San Francisco	San Francisco.
Rahmstorf, George H.	Byron	Alameda.
Raymond, Harry	Berkeley	Alameda.
Redmond, G. S.	San José	Santa Clara.
Reichsrath, Charles	Alameda	Alameda.
Reynolds, Robert	Oakland	Alameda.
Rosenbaum, Nathan	San Francisco	San Francisco.
Saltenberger, George	San Francisco	San Francisco.
Sanguinetti, Antone	Columbia	Tuolumne.
Schilling, William	San Francisco	San Francisco.
Schleweck, Simon	San Francisco	San Francisco.
Schreiner, Henry	Freeport	Sacramento.
Schroder, George	San Francisco	San Francisco.
Selig, Isadore	San Francisco	San Francisco.
Selig, Kossuth	San Francisco	San Francisco.
Shaw, James H.	Salinas City	Monterey.
Sievers, Charles	Stockton	San Joaquin.
Sievers, Henry	Stockton	San Joaquin.
Smith, Ellsworth	Riverside	San Bernardino.
Stewart, Francis	Wilmington	Los Angeles.
Stewart, James H.	Orange	Los Angeles.
Strobel, Fred. G.	San Francisco	San Francisco.
Sullivan, T. W.	San Francisco	San Francisco.
Taber, Hal.	Gibsonville	Sierra.
Taber, Henry W.	Gibsonville	Sierra.
Tripp, William H.	Stockton	San Joaquin.
Weidemuller, Charles	San Francisco	San Francisco.
Wiley, Thomas	San Francisco	San Francisco.
Watson, Fred. W.	Napa	Napa.
Williams, Halleck	Tracy	San Joaquin.
Deaf and Dumb—Females.		
Ankener, Frances L.	Sacramento	Sacramento.
Bradley, Arrenia J.	Chico	Butte.
Bradley, Catherine	Chico	Butte.
Campbell, Marie N.	Los Angeles	Los Angeles.
Cleveland, May	Ukiah	Mendocino.
Craddock, Rose	Shasta	Shasta.
Crawford, Caroline J.	Berkeley	Alameda.
Cohn, Celia	San Francisco	San Francisco.
Cole, Elizabeth D.	Oakland	Alameda.
Cromley, Caroline B.	Tulare	Tulare.
Daggett, Mary E.	New Westminster	British Columbia.
Darling, Sarah J.	Bear Valley	Mariposa.
Decker, Delia	Chico	Butte.
DeFrees, Mary A.	Oakland	Alameda.
Degouy, Margueritte	St. Helena	Sonoma.
Di Vecchio, Ida	San Francisco	San Francisco.
Dobner, Ethel	Anaheim	Los Angeles.
Doren, Theresa	San Pablo	Contra Costa.
Durkee, Mary L.	San Francisco	San Francisco.
Dugan, Mary E.	San Francisco	San Francisco.
Eades, Ida	Lookout	Modoc.
Emry, Frances E.	Chico	Butte.
Ford, Catherine	San Francisco	San Francisco.
Funkenstein, Pauline	San Francisco	San Francisco.
Gand, Mabel A.	San Francisco	San Francisco.
Gassagne, Adela	Los Angeles	Los Angeles.
Gerstle, Frederica	Baker City	Oregon.
Gilbert, Angele	San Francisco	San Francisco.
Halloran, Maggie	Bird's Landing	Solano.
Hatch, Adeline	Redding	Shasta.
Hennessy, Isabella	San Francisco	San Francisco.
Hinman, Mabel A.	Sheridan	Placer.
Horrick, Lizzie	San Francisco	San Francisco.
Howell, Marcia	Poplar	Tulare.
Johnson, Lucy	San Francisco	San Francisco.

LIST OF PUPILS—Continued.

NAMES.	TOWNS.	COUNTIES.
Jones, Edith May	Port Townsend	Washington Territory.
Kiddell, May G.	Sacramento	Sacramento.
Kuffel, Wilina	Bloomfield	Sonoma.
Ledden, Gertrude	San Francisco	San Francisco.
Leonard, Hattie E.	Oakland	Alameda.
Lindstrom, Anna M.	San Francisco	San Francisco.
Lynch, Irene	San Francisco	San Francisco.
Maury, Laura	San Leandro	Alameda.
McLaughlin, Sophie	San Rafael	Marin.
Mucha, Rosa	San Francisco	San Francisco.
Munson, Mary E.	Eureka	Humboldt.
Müth, Elizabeth	Oakland	Alameda.
Norton, Frances A.	Oakland	Alameda.
Petersen, Rassmine	West Berkeley	Alameda.
Porter, Fanny E.	Turlock	Stanislaus.
Presley, Patty B.	Lompoc	Santa Barbara.
Ross, Nellie	Napa City	Napa.
Schütz, Mathilda	San Francisco	San Francisco.
Sieferman, Louisa	Woodland	Yolo.
Sieferman, Emile	Woodland	Yolo.
Thorpe, Charlotte C.	San José	Santa Clara.
Wardlow, Helen L.	San Francisco	San Francisco.
Welch, Nellie	Virginia City	Nevada.
Wells, Sara Z.	Sacramento	Sacramento.
Westfall, Dora A.	Chico	Butte.
Wright, Honora C.	San Francisco	San Francisco.
Blind—Males.		
Burkhardt, Frank R.	Marysville	Yuba.
Coffey, John F.	San Francisco	San Francisco.
Durham, John O.	San Francisco	San Francisco.
Ely, James	Oakland	Alameda.
Foley, Dennis	San Francisco	San Francisco.
Foster, Henry W.	San Francisco	San Francisco.
Hull, Herschel V.	Stockton	San Joaquin.
King, Frank J.	Alameda	Alameda.
Kleutsch, Frank J.	San Francisco	San Francisco.
Lehe, Joseph	Virginia City	Nevada.
Maduro, Joseph	Wright's	Santa Cruz.
McLaughlin, T. G.	Petaluma	Sonoma.
O'Connor, John W.	San Francisco	San Francisco.
O'Rourke, James	San Francisco	San Francisco.
Perry, Newell L.	Millville	Shasta.
Richards, Lewis	Berkeley	Alameda.
Richville, George	San Francisco	San Francisco.
Sedgwick, Thomas	Berkeley	Alameda.
Smith, Cecil H.	Oakland	Alameda.
Staggs, William A.	Napa City	Napa.
Weider, Daniel	Oakland	Alameda.
Blind—Females.		
Alderson, Clara	Oroville	Butte.
Dalton, Nellie	Vallejo	Solano.
Eastman, Mary W.	San Francisco	San Francisco.
Fallon, Kate	West Berkeley	Alameda.
From, Sorine W.	Salinas	Monterey.
Foley, Kate	Duarte	Los Angeles.
Levy, Nathalie	San Francisco	San Francisco.
Logan, Elizabeth O.	Penryn	Placer.
Madrid, Esperanza	Visalia	Tulare.
Mast, Augusta E.	San Francisco	San Francisco.
Mast, Emma L.	San Francisco	San Francisco.
Mullaney, Dorenda	San Francisco	San Francisco.
Penny, Ada	San Francisco	San Francisco.
Perrot, Ella	Oakland	Alameda.
Ramsell, Annie	San Francisco	San Francisco,
Smith, Johanna E.	San Francisco	San Francisco.
Taylor, Agnes M.	San Francisco	San Francisco.
Ziegenbein, Ettie	Oakland	Alameda.

TERMS OF ADMISSION.

The California State Institution for the Deaf and Dumb, and the Blind is located at Berkeley, about four miles north of the City of Oakland. Between San Francisco and Berkeley a steam ferry plies almost every half hour in the day, and from Oakland a railroad is constructed, which lands passengers within easy walking distance of the Institution.

First—The Institution offers its benefits to all deaf and dumb, or blind persons who are of age suitable for instruction, and who are of sound intellect, and free from vicious habits and contagious or offensive diseases.

Second—No charge is made for pupils from this State, except for clothing and traveling expenses.

Third—Pupils from other States or Territories are charged three hundred dollars per annum, payable quarterly in advance. No deduction is made from annual charge, on any account, except in cases of prolonged sickness.

Fourth—The session begins on the fourth Wednesday of August, and closes the second Wednesday of June. Parents are earnestly requested to enter, or return their children, promptly at the beginning of the term. Only in extreme cases will the pupils be permitted to leave before school closes.

Fifth—Pupils should be provided with comfortable clothing when they enter the Institution, and their wardrobe renewed twice a year.

Sixth—All moneys designed for pupils should be placed in the hands of the Principal, to whom, also, all letters of inquiry, etc., should be addressed. Money orders should be drawn on the "Berkeley" Post Office; and all letters, packages, or trunks should be addressed, "Institution for the Deaf and Dumb, and the Blind, Berkeley, Alameda County, California."

Parents or guardians of applicants for admission, are requested to furnish written answers to the following questions:

1. What is the name of the applicant?
2. When and where was he born?
3. Is his deafness or blindness from birth; or is it from accident or disease? If so, at what age and from what cause did he become so?
4. Is his deafness or blindness total or partial? If the latter, what is the degree of hearing or sight?
5. Have any attempts been made to remove his deafness or blindness; and if so, what are the results?
6. Are there any other cases of deafness, blindness, insanity, or idiocy in the same family, or among the collateral branches of kindred? If so, how and when produced?
7. Was there any relation between parents or grandparents before marriage?
8. Has the child had the smallpox, scarlet fever, measles, mumps, whooping cough? Has he been vaccinated?
9. What are the names, nationality, occupation, residence, and Post Office address of parents?
10. What is the number of their children?

REPORT OF THE BOARD OF DIRECTORS

OF THE

INDUSTRIAL HOME OF MECHANICAL TRADES

FOR THE

ADULT BLIND,

For the Year from December 1, 1885, to December 1, 1886.

SACRAMENTO:
STATE OFFICE.............J. J. AYERS, SUPT. STATE PRINTING.
1886.

REPORT.

His Excellency GEORGE STONEMAN, *Governor of California:*

The Board of Directors of the Industrial Home of Mechanical Trades for the Adult Blind, take pleasure in presenting their second annual report of the condition and management of the Home.

The membership of the Board has not changed during the year. From December 1, 1885, to December 1, 1886, there have been held twelve regular meetings, and five special meetings.

On the twenty-fifth of March, 1886, Mr. John F. Burris was removed from the office of Superintendent of the Home, and Mr. Thomas O. Crawford was elected in his place.

Mr. Crawford's high reputation for intelligence and integrity furnished sufficient reason for the change. Besides this, his marked executive ability as Principal for ten years of the Lincoln School, in Oakland, seemed especially to qualify him for the position of Superintendent of the Home. His management for eight months past, has fully justified the choice of the Board, and has merited its earnest commendation.

The officers of the Home, elected at the annual meeting in July, 1886, are as follows:

President, Theodore A. Lord.
Vice-President, Henry A. Palmer.
Secretary and Treasurer, Lander A. Redman.
Superintendent, Thomas O. Crawford.
Physician, John F. Foulkes.

The salaries of the Secretary, Superintendent, and Physician, remain as stated in the last report, viz.: one hundred, one hundred and seventy-five, and fifty dollars per month, respectively, in the order named.

The workshop remains under the same direction as before, with Mr. Joseph Sanders (a blind man) as Instructor, and Mr. W. C. Brewster, Foreman. Mr. Brewster, who came originally as an apprentice, has proved so efficient and valuable, that his salary was increased from $30 to $40 per month from May 1, 1886.

In the month of May, 1886, a one-story dormitory, eighty feet by thirty-six, was built at a cost of $1,035 03. This will furnish sleeping accommodations for fifty-two men. It now gives sleeping and sitting room for all the present inmates, and enables us to use the second story of the shop (formerly occupied as a dormitory) for work and storage.

The following persons were inmates of the Home on the first day of December, 1886:

Name.	Age at Time of Admission.	Former Residence.	Cause of Blindness.
John Sexton	42	San Francisco	Brain fever.
John T. Moore	29	San Francisco	Injury at play when a boy.
D. Harrington	49	San Francisco	Injury in mines.
T. Henery	47	San Francisco	Accident in a well.
C. W. Graves	47	San Francisco	Supposed paralysis of nerve.
T. Powers	40	San Francisco	Powder accident.
Patrick Tighe	39	San Francisco	Accident while work'g in iron.
P. Augustine	46	San Francisco	Exposure to bad weather.
N. Stanovitch	44	San Francisco	Neuralgia.
C. Shea	50	Almshouse, San Francisco	Fever.
J. Connell*	60	San Francisco	Explosion in mines.
J. Barton †	57	San Francisco	Explosion in mines.
George Welden	44	San Francisco	Snow blindness.
M. Reilley	46	San Francisco	Supposed heavy lifting.
L. Riley	38	City and Co. Hospital, S. F.	
J. Croak	53	San Francisco	Accident in mines.
T. F. Hoft	19	City and Co. Hospital, S. F.	Dropsy.
J. Kundert	51	Almshouse, San Francisco	Inflammation.
Wm. Burgoa	50	Almshouse, San Francisco	Supposed atrophy of optic nerve.
A. Anderson	44	Almshouse, San Francisco	Supposed inflam'n of brain.
C. W. Thomas	24	San Francisco	Injury to eye by a stone.
D. Weider	20	Oakland	Congenital cataract.
E. F. Smith ‡	61	Oakland	Glaucoma.
T. Bean	60	Oakland	Cataract.
G. Dudley	33	Placer County	Traumatism, producing sympathetic inflammation.
J. Maduro §	18	Berkeley	Caught cold in eyes.
C. Lerch	27	Lower Lake, Lake County	Inflammation and supposed bad treatment.
H. V. Hull	18	Stockton	Traumatism.
H. L. Smith	30	Yreka	Paralysis of optic nerve, also traumatic cataract.
P. Donovan	37	San Leandro Hospital	Traumatism of right eye.
C. Cronin	54	San José Hospital	Supposed rheumatic iritis.
J. O. Durham	16	Alameda	Paralysis of optic nerve.
J. H. Gafney	32	Stockton	Scarlet fever.
Peter Miller	44	San Buenaventura	Unknown.
F. O'Neal	40	Sacramento Almshouse	Injury to eye.
J. Kerley	28	Cedarville, Modoc County	Injury to eye.
A. E. Hite	55	Chico, Butte County	Struck in eyes with a whip.
E. Porter	28	Placer County	Lifting heavy weights.
G. Campbell	64	Sacramento	Inflammation from foreign substance.
G. H. Hughes	43	Soldiers' Home	Powder accident.
J. Storck	33	Durham, Butte County	
Wm. Hogan	38		Supposed cataract.
R. Rowland	39	San Francisco	Injury to eye in mines.
Joseph Miller	Unknown, about 40	Sacramento	Unknown.

---

* Temporarily absent.
† Left soon after December 1, 1886.
‡ Rooms outside of the Home.
§ Attends school mornings at Deaf and Dumb and Blind Asylum.

Total number of inmates actually present December 1, 1886, forty-four. The health of the inmates has been remarkably good. With the exception of the case of one man who is now nearly recovered, there have been no serious disorders, and but few of the ordinary and unimportant ailments. There have been thus far no beneficiaries doing work at their homes. One young man, Joseph Sinkinson, of Santa Cruz, who was deaf and dumb, and almost totally blind, was an inmate of the Home for several months. He showed great aptitude in learning broom making, and after mastering the trade, returned to Santa Cruz to work for himself. He asked the Board for supplies of broom corn and other material, which we took pleasure in furnishing him at cost. He reports himself as doing very well.

All the inmates during the past year are males, as the money appropriated would not admit of the separate accommodation and instruction of females.

Broom making has been the only industry thus far attempted, because, as before reported, that has been found by experience in other States to be the trade in which the blind are most successful, and because additional trades would require additional buildings, machinery, and teachers, for which the appropriation was not adequate.

Total number of brooms made from December 1, 1885, to December 1, 1886, fifty thousand two hundred and thirty-one, according to the monthly reports of the Superintendent. To this number must be added six hundred and forty-one apprentice brooms, which accumulated during the year, and were not counted until the time of taking account of stock.

So that the manufacturing account will stand as follows, December 1, 1886:

Number of brooms on hand December 1, 1885		3,023
Number of brooms made during the year		50,872
Total		53,895
Number of brooms sold during the year	49,207	
Deduct the number returned and not replaced	175	
		49,032
Total number on hand December 1, 1886		4,863

The total amount of cash received from all sources (except the State appropriation), from December 1, 1885, to December 1, 1886, is as follows:

From sale of brooms	$9,464 60
From sale of calf	6 00
From surplus change	14
Total	$9,470 74

This amount has been sent to the State Treasurer.

The total amount lost by bad debts, during the year, is as follows:

One debt of	$345 72
One debt of	2 55
Total	$348 27

Or a trifle over 3½ per cent on the amount of the sales.

It may be added that the man who caused the largest loss had been very active and prolific in advice as to the manner in which the Home should and should not be conducted.

The salaried officers and employés of the Home are as follows, December 1, 1886:

One Secretary of the Board, monthly salary	$100 00
One Superintendent, monthly salary	175 00
One Physician, monthly salary	50 00
One Instructor (blind), monthly salary	50 00
One Foreman of Shop, monthly salary	40 00
One Assistant Foreman, monthly salary	16 00
One Stableman, monthly salary	25 00
One Laundryman and Waiter, monthly salary	35 00
One Matron, monthly salary	30 00
One Cook, monthly salary	35 00
One Assistant Cook, monthly salary	25 00

One Waitress, monthly salary	$25 00
One Night Watchman, monthly salary	30 00
One Gardener, monthly salary	30 00

Total, fourteen, at an aggregate monthly salary of $666. All of the above, but the Physician, board at the Home.

The amount paid to the blind inmates is as follows:

December, 1885	$84 76
January, 1886	99 85
February, 1886	162 71
March, 1886	192 64
April, 1886	128 20
May, 1886	172 86
June, 1886	192 86
July, 1886	223 00
August, 1886	241 31
September, 1886	271 01
October, 1886	258 39
November, 1886	310 82
Total paid to inmates from December 1, 1885	$2,338 41

Following is a summary of miscellaneous expenses for each month:

MONTHS.	Provisions.	Rent.	Furniture.	House.	Shop.	Machinery.	Miscellaneous.	Raw Material.	Aggregate.
December, 1885	$290 30	$155 85	$192 58	$370 85	$135 71	$341 80	$138 70	$4,022 10	$5,647 89
January, 1886	171 78	155 45	43 05	112 46	---------	---------	32 90	1,339 70	1,855 34
February, 1886	315 44	155 00	149 22	107 00	---------	---------	5 50	622 80	1,354 96
March, 1886	427 37	150 00	---------	26 47	7 50	23 00	144 40	803 09	1,581 83
April, 1886	264 16	160 30	118 00	39 60	---------	52 75	21 20	42 60	698 61
May, 1886	453 03	155 50	19 65	1,161 46	8 38	5 00	51 55	90 00	1,944 57
June, 1886	270 04	155 50	38 26	8 60	12 00	---------	21 65	431 84	937 89
July, 1886	272 95	155 00	42 30	8 50	40 33	---------	111 45	141 96	772 49
August, 1886	573 38	155 30	92 80	8 00	30 82	22 00	222 71	108 62	1,213 63
Septemb'r, 1886	383 06	155 00	34 08	45 25	54 00	10 20	259 47	2,324 69	3,265 75
October, 1886	419 83	155 00	94 80	33 10	76 09	---------	89 17	963 86	1,831 85
November, 1886	436 32	155 50	80 44	16 99	28 76	10 93	238 04	838 77	1,805 75
Totals	$4,277 66	$1,863 40	$905 18	$1,938 28	$393 59	$465 68	$1,336 74	$11,730 03	$22,910 56

Following is a summary of salaries and wages (except to blind inmates) for each month:

MONTH.	General Salary.	Salary of Teachers.	Salary of Domestics.	Aggregate.
December, 1885	$325 00	$122 04	$315 92	$762 96
January, 1886	300 00	103 10	288 52	691 62
February, 1886	300 00	121 20	295 28	716 48
March, 1886	305 00	99 30	263 06	667 36
April, 1886	319 17	87 70	251 92	658 79
May, 1886	325 00	107 85	309 50	742 35
June, 1886	325 00	135 60	250 00	710 60
July, 1886	325 00	90 00	237 50	652 50
August, 1886	325 00	102 00	200 00	627 00
September, 1886	325 00	103 00	265 00	693 00
October, 1886	325 00	101 00	235 00	661 00
November, 1886	325 00	106 00	235 00	666 00
Totals	$3,824 17	$1,278 79	$3,146 70	$8,249 66

RECAPITULATION.

Aggregate expenditures from December 1, 1885, to December 1, 1886:		
Miscellaneous		$22,910 56
Salaries and wages to employés		8,249 66
Wages to blind inmates		2,338 41
Total		$33,498 63
Aggregate receipts for same time		9,470 74
Balance drawn from appropriation		$24,027 89
Deduct assets as follows:		
Bills receivable	$760 64	
Material on hand	3,005 48	
Brooms on hand	966 54	
		4,732 66
Actual cost of the Home		$19,295 23
From this may be deducted the money expended for buildings, machinery, furniture, etc., which may be regarded as permanent improvements, amounting to		3,702 73
Actual running expenses		$15,592 50

REMARKS AND RECOMMENDATIONS.

At this time, there comes up for consideration, the question of the establishment of the Industrial Home for the Adult Blind, as a permanent institution of the State.

A manufacturing institution depending for its products upon blind men, and supporting and teaching them at the same time, can never be expected to be pecuniarily profitable, or even self supporting.

Any pretense that it can be made so we believe to be either visionary or intentionally deceptive. Experience does not justify it even in the older States where expenses are less than they are here.

In this State it is well known that many manufactories, even with the cheapest labor of seeing men, lead but a struggling existence.

We believe that but little more than fifty per cent of the yearly cost of any institution for the blind can be reasonably expected to be returned to the State.

In that view the question arises, does the end to be attained justify the cost? Upon this question we beg leave to offer some suggestions.

The public, as a matter of fact as well as of right, is obliged to support those who are unable in some way to support themselves.

Whether this is done directly by the State, or separately by the different counties, the result is substantially the same—the public pays for it.

What class of afflicted and dependent people appeals more strongly to human sympathy and benevolence than the blind?

Frequently accident and exposure in varied employments have been the cause of their blindness, so that the very energy and industry which go to make men the best citizens, have been the means of producing the present helplessness of these. Many, perhaps most of the blind, are compelled to live in almshouses, or else to eke out a meager and precarious existence by actual begging, playing musical instruments in the streets, which is only begging under another form, or by selling small wares which people buy from sympathy. Those who live at home are usually dependent upon friends and relatives who can ill endure the burden which affection constrains them to bear. In any case, the blind man feels his helplessness, his thoughts turn upon himself with morbid introspection, and he soon settles into idleness and apathy. The past brings to him only the sorrow of "remembering happier things," and the future offers no hope but that which shines beyond the grave.

Let that man be taught a trade, and find that he can earn something for himself, and can contribute to the support of those dear to him, and not only is his mind diverted for the time, but all good impulses are awakened within him. Hope, ambition, energy are aroused when he realizes that he can take his place as a useful factor in society. He feels that dignity and self-respect which those alone can feel who earn the reward of honest effort. In spite of his infirmity he secures his own happiness and the well-being of those about him.

The reasons for the continuation and permanent establishment of the Home may be summarized as follows:

I. The benefit to the individual as a work of charity and humanity. This will extend directly to many hundred blind men and women in the State, and indirectly to many more of their relatives and friends. The Home is not intended as an asylum for the permanent residence of all its inmates, but rather as a school from which many may graduate in rotation.

II. The benefit to the State in changing a mendicant and helpless class into a producing, wage-earning class of skilled workmen.

III. The benefit to the State in the increase of producing power—the building up of home manufacture by white labor—which is what California especially needs. This institution has already proved a potent competitor against those manufacturers who have employed and who now employ Chinese labor. That is a perfectly lawful and measurably effectual way of solving the Chinese problem.

IV. Benefit to the State in stimulating the growth of raw material, as broom corn, etc.

V. Benefit to the State in furnishing the people with articles of universal use in greater abundance, and consequently at cheaper cost than heretofore. If brooms are made cheaply here, there will be no occasion for importing them from St. Louis or other eastern cities, and the money will be retained among our own people.

VI. Benefit to all the people of the State in preventing monopolies, and the formation of "corners," to make them pay dearly for necessities. It is from those who have heretofore had this power, and who furthered it by the employment of Chinese labor, that the chief opposition to this institution has come.

Whatever opinions may be held respecting the use of convict labor by the State, in competition with other labor, the principles in that case in nowise apply to the employment of the blind. It is needless to say that a blind man has as good a right to earn his living as a seeing man, and if the State helps the blind man to fifty per cent of this living, he is then no more than put on an equality with a seeing man. Such competition no good citizen has any right to object to. We believe that objections of this kind arise solely from mercenary and avaricious motives.

Furthermore, for the one, two, or three broom-makers who are or have been employing Chinese labor, and who may lose some percentage of their profits by the competition of blind men, there are hundreds of thousands of people in the State (besides the blind men themselves) who are materially benefited by such competition. We have not heard that the broom-makers of San Francisco are such public benefactors, or have ever done such distinguished public service, as to entitle them to the special protection of the State against the blind men of the State.

We think that a full consideration of the foregoing reasons will clearly show the way in which the State will find its profit by helping its afflicted citizens, even if the money receipts of the Home should not exceed fifty per cent of the expenditures.

Though the members of the Board have met with much hostile, false, and unjustifiable criticism; though we were heavily handicapped at the start, with a Superintendency that was not at all satisfactory; though we ourselves have had to learn the new business as we went along; we think that the success of the Home for the past year, especially during the eight months of Mr. Crawford's incumbency as Superintendent, has been such as to warrant us in an earnest recommendation for its permanent establishment.

To that end we submit an estimate of expenditures necessary for the next two years, calculated upon a basis of one hundred and fifty inmates, including those already here. That number would also include about fifty females.

ESTIMATE.

First—Purchase of House and Grounds.

Five acres, with improvements, corner Telegraph Avenue and Thirty-sixth Street	$25,000
This is estimated to be $5,000 less than what the property is worth to-day.	
Two acres adjoining, in rear, now rented by the Home	3,500

Second—Buildings.

One building for males (brick)	30,000
One building for females (brick)	10,000

Third—Supplies.

Machinery, 100 additional inmates, at $20	2,000
Beds and bedding, 100 additional inmates, at $20	2,000
Subsistence, 150 inmates, at $11 per month	39,600
Subsistence, 26 employés, etc., at $11	6,864

Fourth—Salaries and Wages.

Physician, increase to $100 per month	2,400
Secretary	2,400
Superintendent	4,200
Two instructors	2,400
Foreman and assistant	1,800
One cook	840
Two assistant cooks	1,200
One stableman	720
Eight waiters	4,800
One night-watchman and reader	960
Two gardeners, at $30 per month	1,440
One matron, at $35	840
One assistant matron, at $25	600
Contingencies	5,000
Total	$148,564

Respectfully submitted.

The Board of Directors of the Industrial Home of Mechanical Trades for the Adult Blind.

THEODORE A. LORD, President.

Dated, December 29, 1886.

Subscribed and sworn to before me this twenty-ninth day of December, A. D. 1886.

JAMES L. KING, Notary Public,
308 California Street, San Francisco.

[SEAL.]

FIRST ANNUAL REPORT

OF THE

TRUSTEES OF THE CALIFORNIA HOME

FOR THE

CARE AND TRAINING OF FEEBLE-MINDED CHILDREN.

SACRAMENTO:
STATE OFFICE........JAMES J. AYERS, SUPT. STATE PRINTING.
1886.

REPORT.

San Francisco, November 17, 1885.

His Excellency Governor George Stoneman:

The undersigned Trustees, appointed by your Excellency under an Act of the Legislature of the State of California, approved March, 1885, creating the "California Home for the Care and Treatment of Feeble-minded Children," agreeably and in conformity with said Act, respectfully herewith report to your Excellency their official duties to this date. The members of the Board appointed by you organized on the ninth of April, 1885, all and every one thereof having taken the required oath of office as by law required, all of which are duly filed in the proper department of our State Government.

On the organization, Mrs. Kate Lathrop, of San Francisco, was elected President, and William Harney, a member of the Board, acting Secretary *pro tem.*, without any compensation till such time as we are prepared to assume charge and control of the children who are now and have been under the charge of a private benevolent society, known as the "Home for the Care and Treatment of Feeble-minded Children," deriving its support from the charitable donations of some of our humane public spirited citizens.

Our Board of Trustees, since their organization, have spent considerable time in visiting different parts of our State in order to find a suitable, healthy, and accessible location for a permanent Home, agreeably to the requirements of the Act, and finally purchased the property known as the "Schutzen" or "Rutherford" farm, adjacent to and almost within the limits of the Town of Santa Clara, containing some fifty-one acres of land, with a building thereon containing some eighteen rooms in all. As your Excellency has visited the place, and commended the same so highly for cheapness, its situation as to health, accessibility, and surroundings for the purposes intended, it becomes unnecessary for us to dwell further on the same. Your Trustees paid for this the sum of $14,000. On investigation we found that in order to accommodate the number of children about to be turned over to our care, it became necessary to cause the erection of additional buildings, and to that end one small wing adjacent to the main building was erected for us by the late E. T. Starr, at the cost of $2,146, which included improvements done in the old building, all agreeably to the plans and specifications entered into with him by us.

The other building now in process of construction, which we awarded to Mr. Bradt, and when completed, with the construction of the sewer and other work to be done, will not exceed the sum of $6,000. These, when all finished and completed, will give ample and comfortable conveniences to accommodate from seventy-five to one hundred children.

In order to obtain a good and sufficient supply of water, we are putting the old artesian well on the premises in proper condition, by erecting tanks to contain at least twenty thousand gallons of water, a suitable framework for the same, with proper elevation to give force to the water to be carried to the buildings; also pump and necessary force to lift the water. Considering the small appropriation allowed by the Legislature ($25,000) to carry out and purchase an institution for the purposes required, your Trustees are endeavoring, by strict economy, to bring the same about and keep within said appropriation in the best possible way and manner.

The following are the expenditures to the present time, exclusive of the expenses to put the well in order, or furniture, etc., for the Home:

To Mr. Rutherford, for land and building	$14,000 00
To E. T. Starr, for building one wing, etc.	2,146 00
To E. Menzell, for constructing sewer	249 03
To Mr. Bradt, building in process of construction	6,000 00
To J. M. Johnson, to taking care of workmen on the premises from August 15 to October 15, 1885	91 85
Total	$22,486 88

Of this amount the State has, to the present time, allowed and paid $14,000—the amount of the land and premises purchased. The claims of:

E. T. Starr, for	$2,146 00
E. Menzell, for	249 03
J. M. Johnson, for	91 85
Mr. Bradt, for	6,000 00
Making total	$8,486 88

Remain yet to be allowed and paid by the State. We deem it essential and necessary that the above amounts should be allowed at once, in order that payment should be made to the contracting parties. The claim of E. T. Starr is payable to his administratrix, Mary M. Starr, Mr. Starr, her husband, having died since the performance of the work. The claim of E. Menzell is also in the same condition, not yet been allowed or paid. The claim of Mr. Bradt, for building in process of completion, has to be paid as the work progresses, or the whole amount can be allowed, and a warrant for the same be made payable to the order of Lewis Gerstle, our Treasurer, who would advance the money from week to week to the contractor for payment to his mechanics and laborers, as they progress, till completion of the same, as well also for the material purchased for the same.

Your Trustees respectfully represent that it becomes necessary at once to take charge of the children now under the charge and control of the association who have the same at present under their charge and care, from the fact that, as we understand it, that association has no means to support and take care of the children any further, their means being exhausted; and, as we are correctly informed and believe, they will have to vacate the premises they now occupy in Alameda in a very short time, hence it becomes very important that we should immediately prepare room and accommodation for them. And we respectfully request your Excellency will aid us to have the proper claims allowed and passed upon immediately, in order that we may at once take the children to our charge and care.

On the twenty-second of September, 1885, your Trustees selected and appointed Dr. W. H. Loomis, of Alameda, as Superintendent, at a salary of $900 per year, as provided for in said Act. We feel that we cannot increase that salary, and the matter, whether or not Dr. Loomis will remain for the same, is not yet decided.

KATE B. LATHROP,
Mrs. LUCY E. HIGGINS,
CAROLINE F. BIGELOW,
E. B. HARTSON,
WILLIAM HARNEY,
Trustees.

SECOND ANNUAL REPORT

OF THE

TRUSTEES OF THE CALIFORNIA HOME

FOR THE

CARE AND TRAINING OF FEEBLE-MINDED CHILDREN.

OCTOBER 1, 1886.

SACRAMENTO:
STATE OFFICE, ... JAMES J. AYERS, SUPT. STATE PRINTING.
1886.

BOARD OF TRUSTEES.

Mrs. KATE B. LATHROP, *President*	San Francisco.
Mrs. ELECTRA HARTSON	Napa.
Mrs. CAROLINE F. BIGELOW	Oakland.
Mrs. LUCY E. HIGGINS	Santa Clara.
WILLIAM HARNEY	San Francisco.

OFFICERS.

BUFORD T. WOOD, M.D., *Superintendent.*
Miss MATTIE F. FISHER, *Matron.*
STEPHEN H. KNAPP, *Secretary.*
LEWIS GERSTLE, *Treasurer.*

REPORT.

California Home for the Care and Training of Feeble-Minded Children, Santa Clara, October 1, 1886.

His Excellency George Stoneman, *Governor:*

Agreeably to the provisions of the Act of the Legislature of the State of California creating the California Home for the Care and Training of Feeble-Minded Children, approved March 18, 1885, the undersigned Trustees respectfully submit to you their second annual report.

Under the provisions of the Act aforesaid an appropriation of $45,000 was granted to provide and purchase suitable lands and buildings for an institution suitable for the objects and purposes intended, to furnish the same, support and maintain the inmates and employés. Agreeably, and in conformity to this, the Trustees, after careful visiting and investigating different localities, finally concluded to purchase the property known as the "Schwartzer" property from Mr. C. R. Rutherford, in Santa Clara, adjacent to the property of Mr. Pierce, containing some fifty-one acres of land, together with the building or residence thereon erected, containing some eighteen rooms and kitchen, for the sum of $14,000. This purchase was considered by all experts who had seen the same, as well as by your Trustees, very cheap and reasonable. With the large number of children in our charge at the time of the purchase, we found the building entirely too small to accommodate the same together with the employés. We therefore immediately caused additional wings to the building to be erected; this, together with renovating the old or main building, gave to us temporary room until such time as proper and additional buildings could be erected. The expenses of the additional buildings were made at the cost of $12,413 91, and an additional cost of $4,098 26 was made for furnishing same, including the purchase of horses, cows, wagons, etc.; also the further sum of $1,898 49 expenses for improvements on farm. The above amounts, deducted from the $45,000 appropriated by the Legislature, left us but $12,589 34 to pay the salaries of employés, support and maintain all the inmates since the appropriation was made, being a long time back, so that on the first of October, 1886, there was only a balance to our credit of $3,395 95 to pay all the running expenses therefrom until the Legislature is to meet. As a consequence, were it not from the income derived from the paying children of the institution, and the kind donations and assistance received from several of our humanitarian citizens, it would have been impossible to support and maintain the large number of inmates in our charge out of the meager appropriation granted by the Legislature, which, will be observed, chiefly was expended to obtain lands and suitable buildings, etc., and the Trustees were compelled to exercise the strictest and closest economy in every detail of expenditures under the circumstances, as your Excellency perceived at the time of your visit to the institution.

We have received:

From the State Controller, out of the $45,000 appropriated	$41,604 05	
From Income Fund	1,932 95	
		$43,537 00

We have disbursed:

From State appropriation	$41,604 05	
From Income Fund	1,283 45	
In hands of Treasurer	599 50	
In hands of Secretary	50 00	
		$43,537 00

For the details of the receipts and expenditures and disbursements, enumerating and classifying in detail each and every item with the voucher numbers of the same, together with the inventory of assets of the institution, we respectfully refer you to the reports of the Secretary and Treasurer, hereto annexed and made part hereof. We also annex herewith the report of the Superintendent as to the condition of the institution; the number of inmates therein—age, sex, nativity, residence, and causes of imbecility; paying inmates, with their names; and other matter—all agreeably to the provisions of the law.

On the first day of October, 1886, the institution received under its charge seventy-one children, or inmates, from the various counties of our State. There were several applications for more, which we could not receive for want of room. These applications were pressing and urgent, nearly all indigent and helpless, but for want of rooms and means of support we were compelled to refuse them admittance. We believe with an appropriation of $150,000 we could immediately build additional buildings and furnish the same suitable to accommodate and maintain and support one hundred and fifty additional children of the feeble-minded class and one hundred and fifty of the idiotic class. From the latter we have a large number of applications, but cannot accept them for want of buildings to place them disconnected from the former. Experience so far has taught us the utter impossibility and impracticability of uniting both these classes together. That they should be separated in different buildings or apartments does not admit of a doubt from the most experienced of teachers and physicians who have given the subject long and serious study.

A great number of the children admitted to the institution have made rapid and wonderful progress in their intellectual as well as their physical condition under the system of our teaching and training, in contra to their condition both mental and physical at the time of their admission to the institution. This has been observed and attested by many of our prominent citizens who have from time to time visited the institution, as well as by your Excellency on your visit of inspection.

The Trustees have visited and inspected the institution at all times, as required by law, our President making frequent visits of inspection, and several times remaining at the institution for days, watching its progress.

We respectfully call the attention of your Excellency and the Legislature to section five of the Act regulating the compensation or salaries of the officers. It will be observed there that the salary of the Superintendent is fixed at $75 per month, and that of the Matron at the same figure. Section three of said Act, fixes the salary of the Secretary at $50 per month. As the three respective officers above named assume and perform responsible and important duties, and the institution increasing in numbers from time to time, and the difficulty encountered to obtain good and efficient officers at such low salaries, we submit that these sections should be amended so as to increase the compensation of those respective officers to a fair and reasonable salary, and such as awarded to other and like institutions.

A physician should be selected to visit the institution daily, and provisions should be made in the law empowering the Trustees to employ one at a reasonable compensation, to be fixed in the Act.

You will perceive from the inventory hereto annexed, the assets of our institution amount to the sum of $36,371 44; the items of assets are given at cost price, as our landed property has greatly advanced in value over the amount set forth in the inventory. It will be perceived the State has to-day in assets, we may say, some $40,000 worth of property. This we submit, is a very good showing, considering that all the appropriation given to us was only $45,000, and from that, and out of that, we had to maintain, support, and clothe our inmates, besides the other expenses necessary. As before stated, we have only $4,045 45 on hand October 1, 1886, to pay all expenses of the institution till the Legislature shall speedily come to our relief. This is rather a small amount to get along with, considering the large number of inmates in our charge, and we hope your Excellency will call the early attention of the Legislature to speedily enact and provide proper appropriations for this most humanitarian institution, and the unfortunate class of inmates therein, as well as for those that are to be received therein from time to time. Such an institution, we submit, reflects credit and honor to our State in caring for the unfortunate class of helpless humanity within its boundaries.

We desire to make mention here that Mr. Lewis Gerstle of San Francisco, has kindly acted as Treasurer of the institution without any compensation, and as the law provides, the Board of Trustees devote their time and services without compensation.

All of which is respectfully submitted.

KATE B. LATHROP.
CAROLINE F. BIGELOW.
E. B. HARTSON.
LUCY E. HIGGINS.
WILLIAM HARNEY.

SECRETARY'S REPORT.

To the President and Board of Trustees of the "California Home for the Care and Training of Feeble-Minded Children:"

I herewith present to you my report of receipts, expenditures, etc., for the fiscal year ending October 13, 1886, as follows:

Schedule A—Showing my receipts from the State Controller, on account of State appropriation of $45,000.
Schedule B—Showing my receipts on account of Income Fund.
Schedule C—Showing my disbursements from the State appropriation.
Schedule D—Showing my disbursements from the Income Fund.
Schedule E—Showing my account with Lewis Gerstle, Treasurer.
Schedule F—Showing a recapitulation of receipts and expenditures.
Schedule G—Showing present financial resources.
Schedule H—Showing a classification of expenditures.

Repectfully submitted.

S. H. KNAPP, Secretary.

SANTA CLARA, October 13, 1886.

SCHEDULE A.

Receipts in Coin and Warrants from State Controller.

1885.	
September ——Warrants received from State Controller	$14,000 00
December 21—Warrants received from State Controller	6,667 53
1886.	
January 21—Warrants received from State Controller	1,955 78
February 10—Coin received from State Controller	1,099 94
February 17—Coin received from State Controller	5,171 52
March 19—Coin received from State Controller	3,382 18
April 25—Coin received from State Controller	2,678 44
May 25—Coin received from State Controller	898 21
June 28—Warrants received from State Controller	1,285 84
July 22—Warrants received from State Controller	1,451 40
August 23—Warrants received from State Controller	1,023 23
September 17—Warrants received from State Controller	840 26
October ——Warrants received from State Controller	1,149 72
Total	$41,604 05

SCHEDULE B.

Receipts on account of Income Fund.

1886.	
March 4—Cash received, donation from H. M. Black & Co.	$25 00
March 4—Cash received on account maintenance	128 00
March 6—Cash received on account maintenance	12 00
March 12—Cash, B. T. Wood, M.D., Superintendent	52 50
March 31—Cash, B. T. Wood, M.D., Superintendent	2 50
April 3—Cash, B. T. Wood, M.D., Superintendent	80 00
April 15—Cash, B. T. Wood, M.D., Superintendent	36 00
April 23—Cash, B. T. Wood, M.D., Superintendent	75 00
April 29—Cash, B. T. Wood, M.D., Superintendent	13 00
May 4—Cash, B. T. Wood, M.D., Superintendent	140 00

May 5—Cash, B. T. Wood, M.D., Superintendent	$10 00
May 13—Cash, B. T. Wood, M.D., Superintendent	43 00
May 17—Cash, B. T. Wood, M.D., Superintendent	85 50
May 26—Cash, B. T. Wood, M.D., Superintendent	30 00
June 1—Cash, B. T. Wood, M.D., Superintendent	77 00
June 5—Cash, B. T. Wood, M.D., Superintendent	93 00
June 16—Cash, B. T. Wood, M.D., Superintendent	100 00
June 30—Cash, B. T. Wood, M.D., Superintendent	59 25
July 6—Cash, B. T. Wood, M.D., Superintendent	103 00
July 12—Cash, B. T. Wood, M.D., Superintendent	105 00
July 29—Cash, B. T. Wood, M.D., Superintendent	83 00
August 3—Cash, B. T. Wood, M.D., Superintendent	61 00
August 14—Cash, B. T. Wood, M.D., Superintendent	125 00
August 28—Cash, B. T. Wood, M.D., Superintendent	146 85
August 31—Cash, B. T. Wood, M.D., Superintendent	5 00
September 18—Cash, B. T. Wood, M.D., Superintendent	201 35
September 30—Cash, B. T. Wood, M.D., Superintendent	41 00
Total	$1,932 95

SCHEDULE C.

Disbursements made from Receipts from State Controller.

1885.	
September 30—Geo. W. Rutherford, for the Home of Santa Clara (see deed)	$14,000 00
December 21—Holbrook, Merrill & Stetson, range and boiler (voucher 1)	197 00
December 21—N. P. Cole, furniture (voucher 2)	210 65
December 21—Woman's Coöperative Society, stationery (voucher 3)	6 50
December 21—Bulletin Publishing Company, printing (voucher 4)	52 50
December 21—John Bradt, account new building, etc., (voucher 5)	2,839 00
December 21—Board of Trustees California Home Feeble-Minded Children, traveling expenses (voucher 6)	275 00
December 21—Association Care and Training Feeble-Minded Children, horses and piano (voucher 7)	600 00
December 21—Estate E. B. Starr, new nursery building (voucher 8)	2,146 00
December 21—Robt. Menzell, plumbing, etc., (voucher 9)	249 03
December 21—I. H. Johnson, farm expenses (voucher 10)	91 85
1886.	
January 26—Estate E. B. Starr, building repairs (voucher 11)	23 00
January 26—Jos. T. Terry & Co., furniture (voucher 12)	30 00
January 26—Antoine Enos, labor on farm (voucher 13)	18 00
January 26—W. Van Burkirt, cows (voucher 14)	110 00
January 26—Reed & Welch, insurance (voucher 15)	262 50
January 26—L. V. Garigus, painting, etc. (voucher 16)	20 00
January 26—San José Mercury, printing (voucher 17)	20 00
January 26—D. Rinaldo, paints and oils (voucher 18)	14 43
January 26—J. H. Dibble, plumbing (voucher 19)	4 00
January 26—R. B. Donovan, meats (voucher 20)	16 90
January 26—Universal Bakery, bread (voucher 21)	7 70
January 26—Madan & Myers, oils, paints, and glass (voucher 22)	28 75
January 26—California Manufacturing Company, furniture (voucher 23)	62 50
January 26—R. A. Swain & Co., crockery (voucher 24)	69 67
January 26—Chas. H. Plum & Co., furniture (voucher 25)	287 90
January 26—J. H. Johnson, farm expenses (voucher 26)	49 80
January 26—Robt. Menzell, plumbing (voucher 27)	291 67
January 26—L. R. Thomson, blacksmithing (voucher 28)	9 50
January 26—J. Widney, groceries, hardware, etc. (voucher 29)	219 48
January 26—J. Widney, groceries, hardware, etc. (voucher 29½)	57 03
January 26—Mattie Fisher, salary (voucher 30)	50 00
Jannary 26—L. Petheren, salary (voucher 30)	33 35
January 26—M. L. Proseus, salary (voucher 30)	26 65
January 26—F. D. Hawley, salary (voucher 30)	22 30
January 26—A. T. Dakin, salary (voucher 30)	22 30
January 26—May Dakin, salary (voucher 30)	3 35
January 26—A. F. Stevens, salary (voucher 30)	20 00
January 26—J. Johnson, salary (voucher 30)	75 00
January 26—Chas. Heldreth, salary (voucher 30)	20 00
January 26—Geo. H. Stebbins, salary (voucher 30)	80 00
February 11—S. A. Sabin, tanks, windmill, etc. (voucher 31)	1,099 94
February 18—John M. Bradt, account new buildings (voucher 32)	2,940 00
February 18—John M. Bradt, alterations, repairs, etc. (voucher 33)	977 75
February 18—H. M. Black & Co., wagonette (voucher 34)	500 00
February 18—S. Foster & Co., supplies (voucher 35)	790 40

February 18—Main & Winchester, harness (voucher 36)	$145 00
February 18—J. H. Dibble, plumbing (voucher 37)	58 85
February 18—J. H. Widney, assignee, repairs, etc. (voucher 38)	53 62
February 18—San José Mercury, printing, etc. (voucher 39)	35 00
February 18—The Farmers' Union, farm utensils (voucher 40)	34 75
February 18—H. S. Crocker & Co., stationery (voucher 41)	32 40
February 18—Miss M. Fisher, laundry (voucher 42)	27 50
February 18—R. B. Donavan, seed (voucher 43)	25 50
February 18—Antoine Enos, labor on farm (voucher 44)	22 12
February 18—Walter Avery, labor on farm (voucher 45)	12 38
February 18—Mrs. Cosgrove, fowls (voucher 46)	6 00
February 18—W. H. Loomis, M.D., medicine (voucher 47)	5 00
February 18—Mattie Fisher, salary (voucher 48)	75 00
February 18—S. H. Knapp, salary (voucher 48)	50 00
February 18—Lizzie Petheren, salary (voucher 48)	50 00
February 18—Mary Proseus, salary (voucher 48)	40 00
February 18—T. D. Hawley, salary (voucher 48)	35 00
February 18—A. T. Dakin, salary (voucher 48)	35 00
February 18—M. M. Palmer, salary (voucher 48)	35 00
February 18—Abbie Fyler, salary (voucher 48)	15 00
February 18—May P. Dakin, salary (voucher 48)	5 00
February 18—J. H. Johnson, salary (voucher 48)	30 00
February 18—Geo. H. Stebbins, salary (voucher 48)	40 00
February 18—A. T. Stevens, salary (voucher 48)	30 00
February 18—Chas. Hildreth, salary (voucher 48)	28 00
February 18—W. Nolan, salary (voucher 48)	15 00
March 19—J. M. Bradt, building additions, etc. (voucher 56)	847 15
March 19—Jos. T. Terry & Co., furniture (voucher 57)	227 50
March 19—Truman S. Clark, furniture (voucher 58)	150 00
March 19—G. A. Paul, well work (voucher 59)	93 00
March 19—J. H. Dibble, plumbing, etc. (voucher 60)	81 35
March 19—R. A. Swain & Co., crockery, etc. (voucher 61)	79 89
March 19—J. Nicholson, wagon (voucher 62)	72 50
March 19—Chas. M. Plum & Co., furniture (voucher 63)	27 15
March 19—Goodyear Rubber Co., rubber sheeting (voucher 64)	26 25
March 19—Mercury Printing Co., printing (voucher 65)	18 25
March 19—Wesley Fanning, stoves (voucher 66)	14 00
March 19—H. S. Crocker & Co., stationery (voucher 67)	8 00
March 19—Pacific Manufacturing Company, lumber (voucher 68)	286 89
March 19—Stephen H. Knapp, salary (voucher 69)	50 00
March 19—Mattie Fisher, salary (voucher 69)	75 00
March 19—Lizzie Petheren, salary (voucher 69)	40 00
March 19—Mary L. Proseus, salary (voucher 69)	40 00
March 19—F. D. Hawley, salary (voucher 69)	25 00
March 19—A. T. Dakin, salary (voucher 69)	25 00
March 19—M. M. Palmer, salary (voucher 69)	35 00
March 19—Abbie Fyler, salary (voucher 69)	15 00
March 19—May E. Dakin, salary (voucher 69)	5 00
March 19—J. H. Johnson, salary (voucher 69)	30 00
March 19—Geo. H. Stebbins, salary (voucher 69)	40 00
March 19—A. T. Stevens, salary (voucher 69)	30 00
March 19—W. W. Nolan, salary (voucher 69)	25 00
March 19—Walter Avery, salary (voucher 69)	25 00
March 19—A. L. Young, salary (voucher 69)	12 50
May 3—S. Foster & Co., supplies (voucher 79)	879 34
May 3—Buford T. Wood, salary (voucher 80)	75 00
May 3—Stephen H. Knapp, salary (voucher 80)	50 00
May 3—Mattie Fisher, salary (voucher 80)	75 00
May 3—Lizzie Petheren, salary (voucher 80)	20 00
May 3—Mary L. Proseus, salary (voucher 80)	40 00
May 3—F. D. Hawley, salary (voucher 80)	18 35
May 3—A. T. Dakin, salary (voucher 80)	12 50
May 3—May E. Dakin, salary (voucher 80)	2 50
May 3—M. M. Palmer, salary (voucher 80)	35 00
May 3—Abbie Fyler, salary (voucher 80)	15 00
May 3—Annie L. Young, salary (voucher 80)	25 00
May 3—Ida E. Baker, salary (voucher 80)	14 00
May 3—Sarah Green, salary (voucher 80)	11 70
May 3—Emma Cornelius, salary (voucher 80)	6 65
May 3—John H. Johnson, salary (voucher 80)	30 00
May 3—Geo. H. Stebbins, salary (voucher 80)	40 00
May 3—A. T. Stevens, salary (voucher 80)	30 00
May 3—W. Nolan, salary (voucher 80)	25 00
May 3—Walter Avery, salary (voucher 80)	25 00
May 3—L. V. Garrigus, painting (voucher 81)	335 00

May 3—Pacific Manufacturing Company, lumber (voucher 82)	$311 49
May 3—J. Widney, supplies (voucher 83)	91 63
May 3—B. T. Wood, traveling expenses (voucher 84)	167 15
May 3—L. R. Thompson, blacksmithing (voucher 85)	71 30
May 3—B. T. Wood, Superintendent, incidental expenses (voucher 86)	70 00
May 3—J. H. Dibble, plumbing, etc., (voucher 87)	47 10
May 3—H. N. Cook, farm supplies (voucher 88)	42 50
May 3—R. A. Swain & Co., crockery (voucher 89)	35 65
May 3—H. S. Crocker & Co., stationery (voucher 90)	18 05
May 3—Mercury Job Printing Company, printing (voucher 91)	17 00
May 3—J. H. Terry & Co., furniture (voucher 92)	16 75
May 3—W. T. Garratt & Co., bell (voucher 93)	12 78
May 3—I. Molloy, letter press (voucher 94)	12 00
May 25—S. Foster & Co., supplies (voucher 103)	162 10
May 25—Newhall & Sons, buggy wagon (voucher 104)	75 00
May 25—W. Nelson Knox, cow (voucher 105)	62 50
May 25—M. W. Sipe, sawing wood (voucher 106)	32 50
May 25—George H. Stebbins, tools, etc. (voucher 107)	32 15
May 25—A. L. Bancroft & Co., stationery (voucher 108)	24 12
May 25—California Wire Works, railing (voucher 109)	21 50
May 25—Buford T. Wood, M.D., salary (voucher 110)	75 00
May 25—Stephen H. Knapp, salary (voucher 110)	50 00
May 25—Mattie Fisher, salary (voucher 110)	75 00
May 25—Mary L. Proseus, salary (voucher 110)	40 00
May 25—Mrs. M. M. Palmer, salary (voucher 110)	35 00
May 25—Abbie Fyler, salary (voucher 110)	15 00
May 25—Annie L. Young, salary (voucher 110)	25 00
May 25—Ida E. Baker, salary (voucher 110)	30 00
May 25—Sarah Green, salary (voucher 110)	25 00
May 25—Emma Cornelius, salary (voucher 110)	25 00
May 25—John H. Johnson, salary (voucher 110)	30 00
May 25—A. F. Stevens, salary (voucher 110)	30 00
May 25—Walter Avery, salary (voucher 110)	25 00
May 25—Mary Miller, salary (voucher 110)	8 34
June 28—B. T. Wood, salary (voucher 118)	75 00
June 28—Stephen H. Knapp, salary (voucher 118)	50 00
June 28—Mattie Fisher, salary (voucher 118)	75 00
June 28—Mary L. Proseus, salary (voucher 118)	40 00
June 28—Ida E. Baker, salary (voucher 118)	30 00
June 28—John H. Johnson, salary (voucher 118)	30 00
June 28—Walter Avery, salary (voucher 118)	30 00
June 28—M. M. Palmer, salary (voucher 118)	35 00
June 28—Annie L. Young, salary (voucher 118)	25 00
June 28—Emma Cornelius, salary (voucher 118)	25 00
June 28—Sarah F. Green, salary (voucher 118)	25 00
June 28—Mary Miller, salary (voucher 118)	25 00
June 28—Mary Blanchard, salary (voucher 118)	20 00
June 28—S. Foster & Co., supplies (voucher 119)	326 07
June 28—John Sallows, cutting hay (voucher 120)	175 98
June 28—W. T. Babcock, farm implements (voucher 121)	150 00
June 28—Thomas Lawrence, Jr., cow (voucher 122)	70 00
June 28—Pacific Manufacturing Company, lumber (voucher 123)	67 54
June 28—D. N. & C. A. Hawley, lawn cutter (voucher 124)	11 25
July 23—Buford T. Wood, M.D., salary (voucher 134)	75 00
July 23—Stephen H. Knapp, salary (voucher 134)	50 00
July 23—Mattie Fisher, salary (voucher 134)	75 00
July 23—Mary L. Proseus, salary (voucher 134)	40 00
July 23—Ida E. Baker, salary (voucher 134)	35 00
July 23—M. M. Palmer, salary (voucher 134)	35 00
July 23—Annie L. Young, salary (voucher 134)	25 00
July 23—J. H. Johnson, salary (voucher 134)	30 00
July 23—Walter Avery, salary (voucher 134)	30 00
July 23—Emma Cornelius, salary (voucher 134)	25 00
July 23—Sarah T. Green, salary (voucher 134)	25 00
July 23—Mary E. Miller, salary (voucher 134)	25 00
July 23—Mary Blanchard, salary (voucher 134)	20 00
July 23—G. Foster & Co., supplies (voucher 135)	227 82
July 23—Kate B. Lathrop, Trustee's expenses (voucher 136)	23 10
July 23—Mrs. E. Hartson, Trustee's expenses (voucher 137)	80 00
July 23—Mrs. C. F. Bigelow, Trustee's expenses (voucher 138)	29 00
July 23—Mrs. Lucy E. Higgins, Trustee's expenses (voucher 139)	17 60
July 23—W. Harney, Trustee's expenses (voucher 140)	33 00
July 23—Higgins & Fisher, insurance (voucher 141)	153 60
July 23—J. Widney, supplies (voucher 142)	116 13
July 23—R. A. Swain & Co., crockery (voucher 143)	73 05

July 23—I. Bailey, cow (voucher 144)	$55 00
July 23—Jos. T. Terry & Co., furniture (voucher 145)	51 50
July 23—Post Publishing Company, advertising (voucher 146)	40 00
July 23—Holbrook, Merrill & Stetson, kitchen utensils (voucher 147)	29 93
July 23—Mercury Printing Company, advertising (voucher 148)	20 00
July 23—R. B. Donavan, meats (voucher 149)	11 67
August 23—B. T. Wood, M.D., salary (voucher 155)	75 00
August 23—Stephen H. Knapp, salary (voucher 155)	50 00
August 23—Mattie Fisher, salary (voucher 155)	75 00
August 23—Mary L. Proseus, salary (voucher 155)	40 00
August 23—Ida E. Baker, salary (voucher 155)	35 00
August 23—John H. Johnson, salary (voucher 155)	30 00
August 23—Walter Avery, salary (voucher 155)	30 00
August 23—Mary M. Palmer, salary (voucher 155)	35 00
August 23—Annie L. Young, salary (voucher 155)	25 00
August 23—Emma Cornelius, salary (voucher 155)	25 00
August 23—Sarah F. Green, salary (voucher 155)	25 00
August 23—Mary Miller, salary (voucher 155)	25 00
August 23—Mary Blanchard, salary (voucher 155)	20 00
August 23—S. Foster & Co., supplies (voucher 156)	214 21
August 23—Farmers' Union, supplies (voucher 157)	91 09
August 23—W. J. Adams, lumber (voucher 158)	60 00
August 23—John Sallows, cutting hay (voucher 159)	54 43
August 23—J. H. Dibble, plumbing (voucher 160)	28 65
August 23—Robert Menzell, plumbing (voucher 161)	25 25
August 23—L. R. Thompson & Co., blacksmithing (voucher 162)	45 60
August 23—John Molloy, scale (voucher 163)	14 00
September 17—B. T. Wood, M.D., salary (voucher 172)	75 00
September 17—Stephen H. Knapp, salary (voucher 172)	50 00
September 17—Mattie Fisher, salary (voucher 172)	75 00
September 17—Mary L. Proseus, salary (voucher 172)	40 00
September 17—Ida E. Baker, salary (voucher 172)	35 00
September 17—J. H. Johnson, salary (voucher 172)	30 00
September 17—Walter Avery, salary (voucher 172)	30 00
September 17—Mary M. Palmer, salary (voucher 172)	35 00
September 17—Annie L. Young, salary (voucher 172)	25 00
September 17—Emma Cornelius, salary (voucher 172)	25 00
September 17—Sarah F. Green, salary (voucher 172)	25 00
September 17—Mary Miller, salary (voucher 172)	25 00
September 17—Mary Blanchard, salary (voucher 172)	20 00
September 17—R. B. Donovan, meats (voucher 173)	119 36
September 17—The Farmers' Union, supplies (voucher 174)	100 58
September 17—S. Foster & Co., supplies (voucher 175)	81 35
September 17—Pacific Manufacturing Company, lumber (voucher 176)	48 97
October—Buford T. Wood, M.D., salary (voucher 186)	75 00
October—Mattie Fisher, salary (voucher 186)	75 00
October—Stephen H. Knapp, salary (voucher 186)	50 00
October—Mary L. Proseus, salary (voucher 186)	40 00
October—Ida E. Baker, salary (voucher 186)	35 00
October—Mary M. Palmer, salary (voucher 186)	35 00
October—Emma Cornelius, salary (voucher 186)	30 00
October—John H. Johnson, salary (voucher 186)	30 00
October—Walter Avery, salary (voucher 186)	30 00
October—Annie L. Young, salary (voucher 186)	25 00
October—Sarah F. Green, salary (voucher 186)	25 00
October—Mary E. Miller, salary (voucher 186)	25 00
October—Mary Blanchard, salary (voucher 186)	12 00
October—Pacific Manufacturing Company, lumber (voucher 187)	123 03
October—S. Foster & Co., supplies (voucher 188)	110 70
October—The Farmers' Union, supplies (voucher 189)	109 59
October—J. B. O'Brien, dry goods (voucher 190)	57 79
October—R. B. Donavan, meats (voucher 191)	57 72
October—Jos. T. Terry & Co., furniture (voucher 192)	101 00
October—J. H. Dibble, plumbing (voucher 193)	44 15
October—George H. McDonald, tank repairs (voucher 194)	25 09
October—J. Widney, supplies (voucher 195)	33 65
	$41,604 05

SCHEDULE D.

Disbursements made from receipts from Treasurer, account Income Fund:

1886.

March 5—Mrs. Kate B. Lathrop, school appurtenances, etc. (voucher 49)	$15 70
March 5—Miss M. Fisher, laundry (voucher 50)	27 50
March 5—Southern Pacific Railroad, freight (voucher 51)	8 70
March 5—Mrs. Cosgrove, poultry (voucher 52)	6 00
March 5—S. H. Knapp, incidental expenses (voucher 53)	17 43
March 5—Antoine Enos, laborer (voucher 54)	3 00
March 5—John Rock, trees (voucher 55)	7 30
April 7—M. Fisher, laundry (voucher 70)	27 50
April 7—S. Oberdeener, drugs (voucher 71)	19 55
April 7—J. Cereghine, vegetables (voucher 72)	15 90
April 7—J. H. Johnson, hire of farm wagon (voucher 73)	15 00
April 7—S. H. Knapp, incidental expenses (voucher 74)	13 20
April 6—Milton Beck, mason work (voucher 75)	12 50
April 7—J. H. A. Folker, surgical instruments (voucher 76)	8 00
April 7—J. H. Johnson, service (voucher 77)	6 50
April 7—Joe Enos, laborer (voucher 78)	3 00
May 8—B. T. Wood, sundry expenses (voucher 95)	28 30
May 8—S. H. Knapp, incidental expenses (voucher 96)	23 25
May 8—Robert Menzell, plumbing (voucher 97)	21 30
May 8—J. H. Johnson, laundry (voucher 98)	15 00
May 8—Mrs. Hanson, laundry (voucher 99)	15 00
May 8—I. B. Vosburg, carpenters' tools and work (voucher 100)	13 65
May 8—S. Oberdeener, medicines (voucher 101)	6 80
May 8—Mercury Printing Co., printing (voucher 102)	4 00
June 8—J. H. Johnson, laundry (voucher 111)	30 00
June 8—B. T. Wood, labor on farm, etc. (voucher 112)	25 00
June 8—S. H. Knapp, incidental expenses (voucher 113)	17 50
June 8—T. R. Thompson, blacksmithing (voucher 114)	16 50
June 8—P. L. Lomos, fish (voucher 115)	6 65
June 8—Standard Printing Co., printing (voucher 116)	6 50
June 8—Mahan & Myers, glass, etc. (voucher 117)	2 20
July 10—B. T. Wood, labor at the Home and farm (voucher 125)	134 25
July 10—J. H. Johnson, laundry (voucher 126)	30 00
July 10—S. H. Knapp, incidental expenses (voucher 127)	27 93
July 10—O'Connor, Moffatt & Co., dry goods (voucher 128)	20 25
July 10—L. R. Thompson, blacksmithing (voucher 129)	11 50
July 10—S. Oberdeener, medicines (voucher 130)	11 00
July 10—J. M. Raney, carriage hire (voucher 131)	10 00
July 10—J. H. Johnson, buggy hire (voucher 132)	5 00
July 10—D. N. & C. A. Hawley, sprinkler (voucher 133)	3 00
August 7—S. H. Knapp, incidental expenses (voucher 150)	47 05
August 7—J. H. Johnson, laundry (voucher 151)	32 50
August 7—Universal Bakery, bread, etc. (voucher 152)	26 02
August 7—R. A. Swain & Co., crockery (voucher 153)	11 25
August 7—S. Oberdeener, medicines (voucher 154)	10 15
September 4—B. T. Wood, wages for substitutes, etc. (voucher 164)	72 50
September 4—S. H. Knapp, incidental expenses (voucher 165)	58 85
September 4—J. Cereghine, vegetables (voucher 166)	57 60
September 4—Truman S. Clark, bedsteads (voucher 167)	42 00
September 4—J. H. Johnson, laundry (voucher 168)	32 50
September 4—C. A. Judd, sewing table (voucher 169)	15 00
September 4—Universal Bakery, bread (voucher 170)	6 60
September 4—S. Oberdeener, medicines (voucher 171)	5 15
October—S. H. Knapp, incidental expenses (voucher 177)	71 02
October—J. H. Johnson, laundry (voucher 178)	42 00
October—O'Connor, Moffatt & Co., dry goods (voucher 179)	14 75
October—J. Cereghine, vegetables (voucher 180)	13 85
October—S. Oberdeener, medicine (voucher 181)	9 35
October—L. R. Thompson & Co., blacksmithing (voucher 182)	7 65
October—Universal Bakery, bread (voucher 183)	6 65
October—George H. Fuller, dumb-bells (voucher 184)	5 40
October—B. Hicks, shoes and repairing (voucher 185)	4 25
	$1,283 45

SCHEDULE E.

In account with Lewis Gerstle, Treasurer.

		Dr.	Cr.
March 4	To cash	$128 00	
April 8	To cash	147 00	
May 7	To cash	274 00	
June 3	To cash	235 50	
July 7	To cash	305 25	
August 5	To cash	249 00	
September 3	To cash	276 85	
October 7	To cash	267 35	
March 4	By Draft No. 1		$85 63
April 8	By Draft No. 2		121 15
May 7	By Draft No. 3		127 30
June 3	By Draft No. 4		104 35
July 7	By Draft No. 5		252 93
August 4	By Draft No. 6		126 97
September 1	By Draft No. 7		290 20
October 7	By Draft No. 8		174 92
	By balance		599 50
	Totals	$1,882 95	$1,882 95
	To balance	$599 50	

SCHEDULE F.

Recapitulation.

Received from State Controller	$41,604 05
Received account of income	1,932 92
Total receipts	$43,537 00
Disbursements from State appropriation	$41,604 05
Disbursements account of Income Fund	1,283 45
Balance in hands of Treasurer	599 50
Contingent Fund in hands of Secretary	50 00
Total	$43,537 00

SCHEDULE G.

Financial Resources.

Balance unexpended of State appropriation	$3,395 95
Balance in hands of Treasurer	599 50
Balance in hands of Secretary	50 00
Total	$4,045 45

SCHEDULE H.

Classification of Expenditures.

Account of "The Home" and its improvements	$26,413 91
Account of the farm and its improvements	1,898 49
Account of the furniture	2,589 76
Account of the live stock, horses, cows, etc.	716 00
Account of carriages, wagons, etc.	792 50
Account of salaries	4,886 99
Account of groceries, provisions, etc.	2,232 22
Account of feed for stock	313 71
Account of drygoods, etc.	343 31
Account of coal	231 57
Account of medicine	90 82
Account of hardware	162 66
Account of clothing	30 85
Account of stationery and printing	318 02
Account of Trustees' traveling expenses	457 70
Account of Superintendent's traveling expenses	167 15
Account of insurance for three years	416 10
Account of plumbing (repairs)	189 50
Account of laundry work	279 50
Account of expense account (incidental)	356 74
Total	$42,887 50

TREASURER'S REPORT.

To the President and Board of Directors of the California Home for the Care and Training of Feeble-Minded Children:

I herewith beg to submit my report of receipts and expenditures for the fiscal year ending October 13, 1886:

Receipts.

1886.		
January 21, cash transferred from old association, as per resolution	$50 00	
March 4, cash from Stephen H. Knapp, Secretary	128 00	
April 9, cash from Stephen H. Knapp, Secretary	147 00	
May 8, cash from Stephen H. Knapp, Secretary	274 00	
June 4, cash from Stephen H. Knapp, Secretary	235 50	
July 9, cash from Stephen H. Knapp, Secretary	305 25	
August 6, cash from Stephen H. Knapp, Secretary	249 00	
September 4, cash from Stephen H. Knapp, Secretary	276 85	
October 8, cash from Stephen H. Knapp, Secretary	267 35	
		$1,932 95

Expenditures.

1886.		
January 21, cash for Voucher for Mrs. Lathrop	$50 00	
March 4, cash for Voucher No. 1	85 63	
April 9, cash for Voucher No. 2	121 15	
May 8, cash for Voucher No. 3	127 30	
June 4, cash for Voucher No. 4	104 35	
July 9, cash for Voucher No. 5	252 93	
August 5, cash for Voucher No. 6	126 97	
September 2, cash for Voucher No. 7	290 20	
October 8, cash for Voucher No. 8	174 92	
		1,333 45
October 8, 1886, cash on hand		$599 50

San Francisco, October 8, 1886.

LEWIS GERSTLE, Treasurer.

PROPERTY INVENTORY, OCTOBER 1, 1886.

	Number.	Unit Value.	Total Value.
Axes	2	$1 50	$3 00
Auger	1		50
Apples, dried, pounds	20	03	60
Apple parer	1		75
Bedsteads, iron	68	7 00	476 00
Bedsteads, wood	7		139 00
Blankets, white, pair	16	8 00	128 00
Blankets, colored, pair	67	4 75	318 25
Brooms, dozen	2	3 50	7 00
Baskets, hamper	2	4 00	8 00
Baskets, waste	2	60	1 20
Block and tackle	1		3 50
Brace and bits	1		2 00
Boiler, galvanized, 100 gall.	1		34 00
Boiler, mush	1		6 00
Benches, work, etc.	8	75	6 00
Blackboards	4	3 00	12 00
Brushes, sixteen-inch hair, with handles	16	2 00	32 00
Bells, large	1		12 78
Bells, table and school	3		4 25
Bureaus	16	8 00	128 00
Butter, roll, pounds	18	30	5 40
Butter, firkin, pounds	12	22	2 64
Bacon, pounds	10	08	80
Baking powder, cans	2	2 10	4 20
Bath brick, dozen	2	60	1 20
Books, etc.—			
Arithmetics	4	50	2 00
Story	8		4 80
Copy	27	10	2 70
Drawing	24	15	3 60
Dictionary, unabridged	1		12 00
Readers	42	30	12 60
Scrap	6	50	3 00
Geographies	2	50	1 00
Letter blocks, sets	3	75	2 25
Pencil tablets	3	25	75
Geographical charts	1		1 50
Cribs	20	5 00	100 00
Cots	6	2 00	12 00
Commodes	3	3 50	10 50
Cuspadores	3	25	75
Clocks	4		80 00
Castors	3		4 25
Coffee pots	2		2 75
Cullender	1		60
Candlesticks	6	10	60
Churn	1		3 50
Cake turners	2	20	40
Coffee mill	1		1 00
Crumb pans	2	45	90
Chairs, office 2, revolving 2, arm	4		22 00
Chairs, perforated bottoms	62	75	46 50
Chairs, cane seat	133	1 00	133 00
Chairs, rocker	13	2 25	29 25
Chairs (high)	4	1 25	5 00
Chairs (small)	5	70	3 50
Combs	65	10	6 50
Crowbar	1		1 75
Chisels	5	45	2 25
Compasses	2	50	1 00
Chopping-knife and tray	1		1 75
Carpets—yards	115½	1 50	172 75
Carpets (stair)—yards	13½	2 00	27 00
Carpets (mats)	33	1 00	33 00
Calico—yards	3	10	30
Cultivator	1		12 00
Cows	4		242 50

PROPERTY INVENTORY—Continued.

	Number.	Unit Value.	Total Value.
Chickens	50	$0 50	$25 00
Coal—tons	¾	12 00	9 00
Cracked wheat—pounds	50	2¾	1 38
Candles—pounds	30	15	4 50
Crackers	60	5½	3 30
Codfish (boneless)—pounds	20	6½	1 30
Crockery—Crystal set	1	-------	3 50
China set	1	-------	1 75
Breakfast plates	83	8⅓	6 92
Dinner plates	20	8⅓	1 66
Soup plates	12	8⅓	1 00
Dessert plates	92	8⅓	5 52
Sauce plates	156	4	6 24
Butter dishes	2	50	1 00
Butter individuals	21	3	63
Salt cellars	48	3	1 44
Pitchers	24	1 00	24 00
Pitchers (syrup)	13	50	6 50
Vegetables	21	66	13 86
Gravies	5	60	3 00
Fruit	6	-------	12 00
Pickle	3	35	1 05
Platters	10	75	7 50
Baking plates	6	50	3 00
Mush bowls	46	6	3 96
Egg cups	12	5	60
Cups	103	6	6 18
Saucers	45	6	2 70
Mugs	76	4	3 04
Tumblers, etc.	99	7	6 93
Jelly cups	60	4	2 40
Soup tureen	1	-------	2 75
Fruit jars	6	50	3 00
Earthen jars	2	1 00	2 00
Soup dishes	6	5	30
Spoon glasses	2	-------	75
Toilet sets	7	3 00	21 00
Washbowls	2	1 00	2 00
Chandeliers	6	-------	46 90
Desks—School	31	-------	127 50
Teachers'	2	-------	20 00
Office	3	-------	51 00
Dust pans	20	25	3 00
Dippers	6	-------	1 50
Drums	2	-------	2 00
Drawing knife	1	-------	1 10
Dental instruments, set	1	-------	8 00
Easel	1	-------	4 00
Egg beater	1	-------	20
Furniture, parlor set, 7 pieces	1	-------	173 75
Freezer, ice cream	1	-------	4 50
Funnels	2	15	30
Flannel, red, yards	22	20	4 40
Flannel, canton, yards	28	14½	4 06
Flannel, suiting, yards	71	18	12 78
Flour, barrel	1¼	3 75	4 69
Ginghams, yards	13	10	1 30
Grate sets	3	1 12	3 36
Grindstone	1	-------	4 00
Gopher trap	1	-------	4 00
Griddle	1	-------	60
Grates	2	-------	30
Hay, tons	71	8 00	568 00
Hominy, pounds	40	3½	1 40
Hams, pounds	28	14½	4 06
Harness, double sets	2	-------	156 00
Harness, single set	1	-------	45 00
Horses	3	-------	550 00
Hogs	3	-------	27 00

PROPERTY INVENTORY—Continued.

	Number.	Unit Value.	Total Value.
Halters	5	$1 25	$6 25
Hoes	3	75	2 25
Hose, feet	250	20	50 00
Harrow	1		20 00
Hammers	3	1 00	3 00
Hay forks	2	1 00	2 00
Hand axe	1		1 25
Hatstand	1		15 00
Iron washstand	1		1 50
Irons, smoothing	6	75	4 50
Iron wedges	2	50	1 00
Knives and forks	85	12	10 20
Knives, carving, sets	2		5 00
Knives, butter	2		1 50
Knives, kitchen	2		2 00
Lamps, bracket	14		27 25
Lamps, students	5		25 00
Lampstands	2		6 75
Lamps, ordinary	31		22 75
Lamp chimneys, dozen	5	60	3 00
Lamp globes, dozen	1		1 85
Lanterns	2		3 75
Lawn mower	1		11 25
Linoleum, yards	54¾		58 80
Level, spirit			1 25
Mattresses (average)	86	4 75	408 50
Mattress covers	14	50	7 00
Mirrors	14	2 00	24 00
Matting, China, yards	140	20	28 00
Matting, cocoa, yards	30	50	15 00
Mattock	1		1 50
Magic lanterns (one large)	2		50 00
Molds, for jelly, etc.	7		4 88
Molasses, gallons	5	70	3 50
Medicines (estimated)			15 00
Napkins	136	06	8 16
Nails, kegs	2	3 50	7 00
Napkin rings	6		1 50
Oil, gallons	10	26	2 60
Oil cans	4		1 00
Piano	1		200 00
Piano stool	1		4 00
Pillows, large	85	2 00	170 00
Pillows, small	30	1 00	30 00
Pillowcases	150	35	52 50
Pillowshams	79	20	15 80
Pails (wood and paper)	18		3 75
Pails, galvanized	2	1 25	2 50
Pails, milk	2	60	1 20
Pick	1		1 50
Pruning shears, pairs	2		3 00
Plow	1		11 50
Planes	2		2 75
Putty-knife	1		30
Pliers, pair	1		50
Pans, bread	8	60	4 80
Pans, milk	12	30	3 60
Pans, dish	5	75	3 75
Pans, sauce	6		4 00
Pots, agate	12		20 45
Pots (agate), coffee and tea	3		5 70
Pork, salt, pounds	10	08	80
Potatoes, pounds	220	01	2 20
Potatoes, sweet, pounds	55	01½	83
Range	1		163 00
Railing to piano			21 50
Railing to stoves	2		6 00
Rope, feet	220		6 60
Robes, carriage	4		16 00

PROPERTY INVENTORY—Continued.

	Number.	Unit Value.	Total Value.
Rakes	4	$0 50	$2 00
Rice, pounds	50	5½	2 75
Sheets, wide	44	60	26 40
Sheets, narrow	171	40	68 40
Spreads, wide	43	1 50	64 50
Spreads, narrow	46	1 25	57 50
Straw ticks	66	85	56 10
Stockings, pairs	20	10	2 00
Socks, pairs (per dozen)	24	1 25	2 50
Shoes, pairs	1		1 50
Shades, window	45	1 00	45 00
Sideboard	1		23 50
Slop jars	7		7 00
Skimmers	2	10	20
Steamer, six gallons	1		1 50
Shovels and spades	6		6 00
Scythe	1		1 75
Saws	5		10 25
Squares	2		1 60
Stepladder	1		4 50
Screwdrivers	2		45
Scuttles, coal	3		2 25
Sprinkler, lawn	1		3 00
Scales, Fairbanks platform	1		14 00
Scales, apothecary	1		8 00
Sled	1		6 00
Safe, iron	1		20 00
Stoves, wood and coal	9		41 75
Stoves, oil	2		7 50
Sewing machines	2		75 00
Syrup, gallons	5	45	2 25
Soap, pounds	35	7	2 45
Soda, washing, pounds	50	2	1 00
Soda, cooking, pounds	6	6	36
Salt, pounds	50	1	50
Sugar, white, pounds	65	7	4 55
Sugar, brown, pounds	61	5¾	3 51
Spoons, table	63	44	27 72
Spoons, tea	108	22	23 76
School appurtenances—			
Charts	3		1 00
Form boards	10	20	2 00
Dominoes, set	2		50
Peg boards	2		1 50
Slates	23	10	2 30
Dumb-bells, pairs	33	30	9 90
Globe	1		3 00
Printed words and letters			70
Beads, sticks, etc.			50
Puzzles			1 50
Blocks			1 00
Picture cards	14		70
Tenpins, set	1		1 50
Towels	144	6	8 64
Table cloths	9		18 00
Table covers (average)	14	75	10 50
Tables, kitchen	4	3 00	12 00
Tables, dining	7	6 00	42 00
Tables, extension	1		12 00
Tables, sewing	1		15 00
Tables, small (average)	20	1 50	30 00
Tubs, shower	1		4 00
Tubs, wash	1		1 00
Tongs	3		1 50
Try-square	1		40
Trowel	1		88
Tree climbers, pair	1		3 50
Teapots	3		2 00
Tea trays	3	60	1 80

PROPERTY INVENTORY—Continued.

	Number.	Unit Value.	Total Value.
Toasters	2		$0 40
Trees, single and double, pairs	2		3 50
Tin boiler	1		1 75
Tea, pounds	25	$0 32½	8 12
Vise	1		4 00
Vases, pair	1		5 00
Wardrobes	4	20 00	80 00
Wagonette	1		500 00
Wagon, Studebaker	1		125 00
Wagon, two-horse spring	1		75 00
Wagon, one-horse democrat	1		70 00
Wagon, one-horse buggy	1		75 00
Wagon-jack	1		5 00
Wheel-barrows	2	1 50	3 00
Wrenches	2		1 25
Washer-cutter	1		1 00
Washboards	5	50	2 50
Wringer	1		4 00
Wood, cords	55	5 00	275 00
			$8,059 04

RECAPITULATION—ASSETS.

Real estate	$14,000 00
Addition, buildings, and improvements	14,312 40
Personal property, as per inventory	8,059 04
	$36,371 44

SUPERINTENDENT'S REPORT.

Santa Clara, October 1, 1886.

To the President and Board of Trustees of the California Home for the Care and Training of Feeble-Minded Children:

The law controlling our Home requires that I report to you at this your first annual meeting, and give an account of my stewardship since the time you saw proper to honor me with the position which I have held since the first of last March. How I have discharged my duties is not for me to determine. I invite upon your part the most rigid scrutiny of my conduct. I will not say that I have not made mistakes, but ask that you judge leniently, knowing that wherever made it was an error of judgment. In my report I will endeavor, in as concise a manner as possible, to present such points as are most likely to interest the general public and disseminate useful information among the people. Considering the short time I have been engaged in the study of idiocy, I could not hope to make such a paper as would be interesting to the profession generally, and particularly to those who have had the advantage of years of observance and study of the subject as well as a practical acquaintance with the best method of systematic training. My purpose will be to bring the Home more thoroughly in contact with the masses, that they may have a more general idea of the character of work; what idiocy is; the evidences of its existence; that the feeble-minded can be taught; our duty to furnish the best means for their improvement, and that the means afforded by the State are inadequate to meet the demands made almost daily. This I will attempt to do in such language, free from technicalities, so that every one may be able to understand. On the tenth of last December, when the children were removed from Alameda to this place, and this Home became a State charge, there were twenty inmates, and when I assumed control as its Superintendent, on first of March, there were still only twenty. Since that time one has died, five have been taken away by parents, and fifty-five have been admitted, making our present number sixty-nine (69), thirty-seven males and thirty-two females. Of this number there are from the counties of—

Alameda	10	Sonoma	1
Butte	1	San Bernardino	2
Contra Costa	1	San Francisco	34
Fresno	1	San Joaquin	2
Kern	1	San Mateo	1
Lake	1	Santa Clara	5
Los Angeles	4	Tulare	1
Marin	1	Yolo	2
Monterey	1	Yuba	1
Napa	1	State of Nevada	1
Sacramento	3		

WHAT IS IDIOCY.

Whether this is the most appropriate term to express that infirmity of the brain and spinal marrow, which results in that specific condition of mind commonly called idiocy, I will not attempt to argue; suffice it to say, that it is the term used by the majority of the encyclopedias, and will be employed in this paper to designate both the physiological infirmity and mental condition of the idiot. As to the physiological infirmity, a rather close study of the cases in our Home, and especially those admitted since I became the Superintendent, leads me to adopt the definition given by Dr. Edwin Seguin, in his work called "Idiocy and its Treatment by the Physiological Method." He says, "Idiocy is a specific infirmity of the cranio-spinal axis, produced by deficiency of nutrition in utero and in neonate." From this definition it will be seen that this infirmity affects particularly the functions that give use to the "reflex instructive and conscious phenomena of life." Hence all the powers of motion, feeling, understanding, and will are very imperfect.

It may be said of one who is profoundly idiotic that he observes nothing, does nothing, thinks of nothing, and cares for nothing. Ordinarily we have no difficulty in distinguishing these unfortunate members of our population. Now and then we meet with a case well calculated to deceive the most observing; we have several of this class in our Home. The size and shape of the head; the well turned arms and legs; the sweet face and bright eye, have led many to ask with some degree of astonishment, "What is that boy or girl doing here?" and "What is the matter with him?" and often a look of incredulity manifests itself when told the intelligent looking child had been with us several months before it was able to distinguish between letters or pictures, if at all. It is a singular fact that the parents are the last, and especially the mother, to discover that their child is idiotic, and this holds true among those of highly cultivated minds. This may be attributed to two facts: first, familiarity with the defect; and second, from the notion that the knowledge of the fact in the community will lead the public to attach approbium to the family. This not unfrequently induces the parents to close their eyes to the condition of their child, and the consequence is, much of the precious time that ought to be spent in appropriate efforts for its improvement is lost in trying to conceal the fact from others. It is known to all teachers of this unfortunate class of children, that the earlier our efforts are made for improvement the greater is the prospect for our success. In many cases of idiocy, where the defect is slight, the fact is not observed until the child is several years of age. Generally, however, the defective locomotion or inability to walk, filthiness of habit, the slavering, the bad temper, backwardness in talking, difficulty of getting the child to seize hold of or hold on to the chair, hand, or stick, dullness or indisposition to notice toys which usually attract the attention of children, or irritability of the child, crying almost constantly when not asleep; these, with their kindred evidences, excite in the minds of parents the suspicion that the child "*is not right*." Some children, as time rolls on, emerge from this condition to such an extent that parents lose sight of their former impressions, until effort after effort, for months, and even years, fails to teach the child how to count; to distinguish colors or a letter of the alphabet; when they wake up as from a long sleep, and fully realize the fact that their child is an idiot. There is rarely found an idiot possessed of perfect bodily functions. The deficiency can be observed in the locomotion, powers of apprehension, power of speech, etc. It is true that great ugliness and deformity may and do coexist with a perfect mind and great mental powers, but the term idiot, implies, necessarily, imperfect physical and mental force.

Now let me reassert a fact known to all writers and teachers that the shape of the head, expression of the face, and the degree of deformity, are very unsafe guides in forming our conclusions in reference to idiocy. It is true, as a general rule, the defects of the body bear a very close relation to the deficiency of intellectual force or power, and the greater the physical defect, the greater the idiocy; but the rule is not without its exceptions. With this class we find all the special senses more or less defective. The sense of feeling may be universally dull, and heat or cold may produce very slight impressions; or the defect in sensibility may be confined to some particular part of the body. The sense of taste in some cases is greatly perverted or entirely absent, so that a child will eat the most repulsive things with as much relish as the highly cultivated would partake of the most delicate repast. The sense of smell may be entirely wanting, or so perverted that the most fetid or offensive articles may be preferred. There is often deficiency of power to move the eyes in the direction of an object. There is, in some cases, a decided defect in sight, although no malformation of the organ can be detected. The eyes may seem to be fixed upon an object for any length of time and yet no evidence that an impression has been made upon the brain. There is evidently an imperfect relation existing between the brain and the organ of sight. The child is not physically but intellectually blind. The external ear may be well formed, while the ability to listen seems to be entirely wanting. Defects of the body are numerous, irregularity of teeth is common, also thickness of tongue. In two of our inmates the latter is decidedly marked. Often there is want of coöperating power of the muscles of arms, hands, legs, and feet. A vast range of mental action is wanting. The higher faculties are lacking in nearly all. The powers of perception, induction, and deduction are almost, if not altogether wanting. Little or no foresight, no thought for the future, no knowledge of danger or surrounding difficulties, and hence no effort at extrication. No care for the present, no remembrance of past. There is also a deficiency or entire absence of correct notions of right and wrong, in reference to others and of the relation of the creature to the Creator.

The causes of idiocy may be endemic as seen in the Alps where cretinism prevails, as well as in our own country in some regions, and may also be of paternal and hereditary origin. The intermarriage of family relations is thought to be a source of idiocy as it is also of the deaf mute and the blind. Protracted intellectual or business excitement in the father, or licentiousness upon the part of one or both parents, especially the mother, during pregnancy, may produce idiocy in the child. Maltreatment to the mother during pregnancy, inflicting severe shocks on the nervous system, especially when coupled with a want of healthy nourishment, may produce the same result.

I will not pursue this interesting subject further than to say, whatever produces a continuous disturbed functional action of the nervous system in the mother when pregnant, or deprives the child of healthy nutriment either before or subsequent to birth, may and does often result in idiocy. In almost all ages individual attempts have been made to educate the feeble-minded, by philanthropic persons, with the best means they could borrow from the common schools. Systematic teaching is of recent date. Is it not our bounden duty to furnish intellectual food for every class? While it may be stated as a fact that but few of the imbecile class can be educated to take an independent or prominent position in society, all of them to some extent can be benefited and improved. The helpless idiot is not a hopeless one; most all can be taught to wash, clothe, and feed themselves, and many are advanced beyond this and really made serviceable and can in part or altogether be made self-supporting; besides the great happiness and self-respect they are made to experience and enjoy by this improvement and the diminution of burden upon others for their support should always be taken into consideration. California has not been behind her sister States in her efforts to give sight to the blind, hearing to the deaf, and speech to the dumb; but alas, those for whom we plead have eyes, but they see not; ears, but they hear not; tongues, but they speak not; and hearts, but they understand not. Shall we be deaf to their claims and blind to their wants. Heaven forbid, Christianity and humanity alike say not, and in this great battle with intellectual darkness, California expects "every man to do his duty."

It will readily be observed from the general history of our inmates, that to secure the greatest degree of success in our efforts, classification is absolutely necessary. Every man must see that those for whom none other than custodial care can be exercised, ought not to be allowed contact with those that are teachable, and even among those that can be improved there are degrees of intellectuality. These ought to be classified. Every parent knows that a child will contract habits of filthiness when allowed vicious association, that will require weeks and even months to correct. If this be true of the strong, how much more of the feeble-minded and idiotic? A want of room denies us this desideration. The wonder is that so much has been accomplished under the great want of proper facilities for classification. With the number of children in our Home we should have at least three school-rooms, with a corresponding number of teachers. Whereas, we have no room adapted to the purpose, but are using two rooms that were erected for dormitories. Already there are more than children enough for the available room. Applications for admission are rapidly coming in; what shall we do for them? We will not enlarge upon the necessities of our Home, as we hope every member of the next Legislature will visit us and learn, by personal observation, the disadvantages under which we labor. In asking for an appropriation to extend our buildings, we plead not in our own behalf, but in behalf of afflicted humanity. Shall we ask in vain? Remember you may have among your own loved ones, those who may need the fostering care of this Home. In conclusion, ought we not to render thanksgiving and praise to God, our Heavenly Father, for the health during the year of all connected with our Home, and for the degree of success which has attended our efforts to do good to the poor idiot, whose claims were so long ignored and overlooked. And may a kind Providence so direct all our efforts, that when our work shall have been finished on earth, those we leave behind us may say they rest from their labors and their works do follow them.

Respectfully submitted.

(Signed:) BUFORD T. WOOD, Superintendent.

The following amounts were received from pupils, also amounts unpaid, from March 4, 1886, to October 1, 1886:

Name.	Amount.	Name.	Amount.
Badeau, Stella	$62 95	Amount brought forward	$914 45
Curtis, Victor L.	90 00	Nelson, Rudolph	40 00
Curtis, Murray J.	24 00	Oaks, Frank	150 00
Cohn, Benj. B.	10 00	Peck, Charlotte	60 00
Cleary, Maggie	15 00	Swearinger, Bernice	120 00
Danforth, Lena L.	40 00	Scott, John	100 00
Ellis, Arthur	35 00	Scott, Benjamin	100 00
Field, Alfred	60 00	Scranton, Edward	75 00
Fisher, Eva M.	40 00	Salem, Will	35 00
Folks, Leon	20 00	Tobin, John S.	30 00
Gibson, Gracie L.	12 50	Taylor, L. E.	50 00
Hatch, Myra J.	60 00	Thrift, Carrie	20 00
Harnes, Emma	45 00	Vander-Naillen, Mary	30 00
Hansen, Joseph	9 00		
Hamilton, Maud	15 00	Total	$1,724 45
Hamilton, Hugh	56 00	Cow sold to R. B. Donovan	30 00
Hard, Newton	5 00	Calf sold to R. B. Donovan	5 50
Jones, Etta	50 00	Hog sold to Dr. Warburton	8 00
Jessup, L. B.	80 00		
Kenna, Margaret	60 00	Total amount received	$1,767 95
Kennedy, Griffen	15 00		
Laranaga, Angel	70 00	*Amount unpaid and due.*	
Meninger, Harry	40 00	Curtis, Murray J.	$32 00
		Kenna, Margaretta	30 00
Amount carried forward	$914 45		
		Total amount due	$62 00

REGISTER OF ADMISSIONS TO THE CALIFORNIA HOME FOR THE CARE AND TRAINING OF FEEBLE-MINDED CHILDREN.

Date of Admission.	NAME.	Parents' or Guardians' Name.	Residence.	Where Born.	When Born.	Age—Years.	Mental Deficiency.	Date of Discharge.	Terms of Admission, per month.
Dec. 10, 1885	Jansen, Martha		San Francisco	Norway	Feb. 8, 1869	17			
Dec. 10, 1885	Badeau, Stella	W. C. Badeau	Duarte	New York	Oct. 29, 1857	29	Epileptic convulsions		$8 35
Dec. 10, 1885	Kreutzman, Theodora	W. S. Kreutzman	San Francisco	Denmark	July 9, 1865	21			
Dec. 10, 1885	Kenna, Margaret		San Francisco	Philadelphia, Pa.	Oct. 10, 1844	42	Congenital		15 00
Dec. 10, 1885	Ward, Albino		San Francisco	Illinois	Aug. 4, 1855	31	Congenital		
Dec. 10, 1885	Kirschner, Louise	Agnes Kirschner	San Francisco	New York	April 21, 1870	16			
Dec. 10, 1885	Fisher, Eva May	Fayette Fisher	Oakland	California	May 9, 1870	16	From a fall		10 00
Dec. 10, 1885	Wilson, Maud C.*	Frank Wilson	Oakland	Colorado	June 9, 1873	13	Congenital	Feb. 4, 1886	
Dec. 10, 1885	Leach, Eva A.	Rev. J. N. Leach	Tulare	California	Aug. 18, 1873	13	Congenital		
Dec. 10, 1885	Chase, H. May	H. M. Chase	San Francisco	California	April 1, 1876	10	Congenital		
Dec. 10, 1885	Scranton, Edward A.†	Mrs. E. Osborn	Genoa	Nevada	Oct. 22, 1873	13	Brain fever	June 10, 1886	
Dec. 10, 1885	Kelsey, Chas. C.	H. B. and B. C. Kelsey	Los Angeles	California	April 21, 1873	13	Convulsions		
Dec. 10, 1885	Curtis, Murray Jos.	M. and B. Curtis	Oakland	California	Feb. 16, 1875	11	Congenital		8 00
Dec. 10, 1885	Murdock, Claude L.	M. E. Murdock	San Francisco	California	Oct. 23, 1876	10	Congenital		
Dec. 10, 1885	McCarthy, Thomas	Mrs. M. McCarthy	San Francisco	California	Oct. 3, 1876	10	Congenital		
Dec. 10, 1885	Field, Alfred	N. T. and N. S. Field	San Francisco	California	Mar. 2, 1878	8	Congenital		10 00
Dec. 10, 1885	Laranaga, Angel	H. S. Laranaga	San Francisco	California	Dec. 5, 1876	10	Paralysis		10 00
Dec. 10, 1885	Hansen, Victor E.	E. Hansen	San Francisco	California	April 15, 1879	17	Measles		
Dec. 10, 1885	Dorr, Walter	Sarah Dorr	Stockton	California	Nov. 27, 1881	5	Congenital syphilis		
Dec. 10, 1885	Phillips, Bernard	Phillip Phillips	Sacramento	California	Mar. 4, 1881	5	Congenital		
Feb. 25, 1886	Mennienger, Harry	Henry Mennienger	Mount Eden	California	Mar. 22, 1876	10	Congenital		10 00
Feb. 28, 1886	Burnett, Alexander	Richard Burnett	San Francisco	California	Nov. 21, 1874	12	Congenital		
Mar. 1, 1886	Vandernaillen, Mary A.	A. and V. Vandernaillen	North Temescal	Pittsburgh, Pa.	Nov. 28, 1869	17	From a fall		5 00
Mar. 2, 1886	Oaks, Frank	Omar Oaks	Santa Clara	California	Mar. 23, 1874	12	Whooping cough		25 00
Mar. 2, 1886	Curtis, Victor L.	W. J. Curtis	San Bernardino	California	April 22, 1871	15	Congenital		15 00
Mar. 2, 1886	Cleary, Margaret	J. and E. Cleary	San Francisco	California	Oct. —, 1874	12	Convulsions		
Mar. 4, 1886	Ellis, Arthur B.	E. and S. E. Ellis	Wright's Station	California	Aug. 30, 1881	5	Epileptic convulsions		5 00
Mar. 7, 1886	Gumasso, Vittorio	A. and A. Gumasso	San Francisco	California	July 4, 1878	8	Congenital		
Mar. 9, 1886	Scott, John	Mrs. Betsy Scott	Woodland	California		17	Congenital		25 00
Mar. 9, 1886	Scott, Benjamin	Mrs. Betsy Scott	Woodland	California		12	Congenital		25 00
Mar. 14, 1886	Mora, Enrique de ‡	M. de Mora	Alameda	New York	Aug. 13, 1872	14	From a fall on the head		
Mar. 20, 1886	Haskell, Willie	O. P. Haskell	Oakland	California	———, 1878	8	Meningitis		
Mar. 23, 1886	Hopkins, Joseph	Joseph Hopkins	San Francisco	California	Sept. 19, 1871	15	Congenital		
Mar. 30, 1886	Frazier, Wm. T.	W. T. Frazier	Bakersfield	California	April 18, 1881	5	Convulsions		
April 2, 1886	Swearinger, Birnece	J. B. Swearinger	Chico	California	June 12, 1870	16	Spinal meningitis		25 00
April 5, 1886	Alley, Octavia E.	W. and L. Alley	San Francisco	California	Oct. 1, 1871	15	Congenital		
April 10, 1886	Nelson, Arthur R.‖	Samuel Nelson	Santa Clara	Iowa	Oct. 24, 1880	6	Congenital		8 00

---

* Taken home by mother.

† Taken home by guardian, C. S. Young.

‡ Taken home by mother, to go to Mexico.

‖ Died of brain fever, August 23, 1886.

REGISTER OF ADMISSIONS—Continued.

Date of Admission.	NAME.	Parents' or Guardians' Name.	Residence.	Where Born.	When Born.	Age—Years.	Mental Deficiency.	Date of Discharge.	Terms of Admission, per month.
April 11, 1886	Salme, Wm.	M. and M. Salme	San Rafael	California	May —, 1877	9	Congenital		5 00
April 13, 1886	Udell, Emma		San Francisco	California	———, 1876	10	Congenital		
April 14, 1886	Gibson, Grace E.§	Andrew Gibson	San José	California	Mar. 19, 1878	8	Congenital		5 00
April 15, 1886	Thrift, Carrie E.	Peter Thrift	Santa Rosa	Kansas	Dec. 2, 1870	16	Congenital		
April 16, 1886	Danforth, Lena L.§	E. E. and E. L. Danforth	Oakland	Nevada	Nov. 5, 1875	11	Congenital	Aug. 25, 1886	$10 00
April 22, 1886	Gregg, Owen	Nannie Gregg	Lakeport	California	July 15, 1879	7	Congenital		
May 4, 1886	Jones, Etta	Isabella Jones	San Francisco	California	Nov. 15, 1863	23			10 00
May 6, 1886	Tobin, John S.	T. D. and C. Tobin	Oakland	California	Feb. 25, 1876	10	Hydrocephalus		5 00
May 10, 1886	Giles, Edward		San Francisco	California	Mar. 4, 1868	18	Hydrocephalus		
May 12, 1886	Taylor, Louise E.	George T. Taylor	San Francisco	Ohio	Nov. 17, 1863	23	Scarlet fever		10 00
May 12, 1886	Udell, Lafayette		San Francisco	California	———, 1879	7	Congenital		
May 18, 1886	Jessup, Louis B.	H. M. Jessup	San Francisco	Illinois	July 11, 1859	27	Congenital		20 00
May 29, 1886	Neeley, Isabella		San Francisco		Supposed to be	28	Congenital		
May 29, 1886	Jenkins, Mary E.		San Francisco		———, 1871	15	Congenital		
May 29, 1886	Deidering, Louis		San Francisco		Supposed to be	9	Congenital		
June 7, 1886	Hatch, Myra J.	R. H. and M. J. Hatch	Half Moon Bay	California	July 27, 1880	6	Congenital		15 00
June 14, 1886	Wilson, Maud C.	Mrs. Frank Wilson	Monterey	Colorado	June 9, 1873	13	Congenital		
June 27, 1886	Bauerman, Johanna	Frederick Bauerman	San Francisco	New Jersey	July 3, 1864	22	Dentition		
June 28, 1886	Nelson, Augustus	Annie Nelson	San Francisco	California	May 4, 1876	10			
July 1, 1886	Harms, Emma D.	T. A. Harms	Pleasanton	California	Dec. 25, 1865	21	Epileptic convulsions		15 00
July 3, 1886	Hansen, Joseph	M. J. Hansen	San Francisco	Iowa	Oct. 5, 1872	14	Kick from a horse		3 00
July 4, 1886	Hamilton, Maud C.	G. A. Hamilton	Alameda	Nevada	Oct. 5, 1877	9	Cholera infantum		5 00
July 10, 1886	Randall, Flora	T. F. Randall	Linden	California	Sept. —, 1875	11	Congenital		
July 10, 1886	Kennedy, Griffin		Camptonville	Missouri	June 1, 1867	19	Congenital		5 00
July 13, 1886	Stefano, Mary	Nicola Stefano	Sacramento	California	June 10, 1873	13	Congenital		
July 16, 1886	Scala, Paul ¶		San José	California	Mar. 2, 1871	15	Congenital	July 24, 1886	
July 18, 1886	Reding, Helena	Frank Reding	San Francisco	California	June 28, 1878	8	Cholera		
July 26, 1886	Cohn, Benj. B.	A. B. Cohn	San Francisco	New York	Jan. 22, 1876	10	Congenital		5 00
Aug. 2, 1886	Folks, Leon	Samuel Folks	San Bernardino	California	Feb. 1, 1873	13	Congenital		10 00
Aug. 3, 1886	White, Cora E.	Mrs. S. J. Peterson	Los Angeles	Missouri	Sept. 5, 1874	12	Congenital		
Aug. 3, 1886	Hamilton, Hugh	H. Hamilton	Alameda	Scotland	Jan. 16, 1869	17	Congenital		14 00
Aug. 11, 1886	Hooper, Thomas	George E. Hooper	Antioch	California	Mar. 19, 1873	13	Congenital		
Aug. 11, 1886	Carpenter, Herbert	Stella C. McLaughlin	Los Angeles	California	April 4, 1877	9	Congenital		
Aug. 18, 1886	Peck, Charlotte	A. J. and M. E. Peck	Courtland	California	Nov. 30, 1874	12	Congenital		10 00
Aug. 25, 1886	Ames, Lillie May	Catharine Ames	Napa City	Iowa	Oct. 16, 1867	19	Stroke of lightning		
Sept. 9, 1886	Weidemuller, Chas. H.	Mrs. F. G. Weidemuller	San Francisco	California	Jan. 28, 1871	15			
Sept. 30, 1886	Riley, Mary E.	Prot. Orp'n Asyl'm, guard'n	San Francisco	California	Mar. 4, 1867	19	Congenital		
Sept. 30, 1886	Koch, Mary L.	Chas. Koch	San Francisco	California	Sept. 1, 1871	15	Congenital		
Sept. 30, 1886	Hurd, Newton	Rev. J. N. Hurd	Fresno	California	Mar. 17, 1861	17	Epileptic convulsions		5 00

---

§ Taken home by parents.

¶ Went home, and returned by parents.

REPORT

OF THE

Board of Trustees of the State Normal Schools

FOR THE

Years ending June 30, 1885, and June 30, 1886.

SACRAMENTO, CAL.
STATE OFFICE..........JAMES J. AYERS, SUPT. STATE PRINTING.
1886.

REPORT OF THE TRUSTEES OF THE STATE NORMAL SCHOOLS.

To his Excellency George Stoneman, *Governor:*

Sir: We have the honor to submit to your Excellency the report of the schools under our charge for the thirty-sixth and thirty-seventh fiscal years.

We ask a careful examination of the reports of the Principals, and a close scrutiny of the detailed statement of expenditures, as only by such examination and scrutiny can the work of the schools or the plan of their management be appreciated.

For the coming two years, to keep the schools in the same condition of efficiency, the following sums will be needed:

NORMAL SCHOOL, SAN JOSÉ.

For current expenses	$76,000
For additions to library	1,000
Total	$77,000

BRANCH NORMAL SCHOOL, LOS ANGELES.

For current expenses	$36,000
For library and museum	2,000
For care of grounds	1,500
Total	$39,500

We have the honor to be, very respectfully, your obedient servants,

RALPH LOWE,
Vice-President Board of Trustees.

Charles H. Allen, Secretary.

FINANCIAL REPORTS

AND

REPORTS OF PRINCIPALS.

FINANCIAL REPORT

Of the State Normal School, San José, for the Thirty-sixth Fiscal Year, ending June 30, 1885.

Date of Auditing.		Dr.	Cr.
1884.			
	Balance of appropriation for 35th fiscal year, on hand July 1, 1884, as per last report	$366 40	
	Balance of Tuition Fund on hand July 1, 1884, as per last report	1,142 74	
	Amount of appropriation for thirty-sixth fiscal year	40,000 00	
	Amount of tuition money received for six months ending December 31, 1884	1,770 75	
	Amount of tuition money received for six months ending June 30, 1885	1,452 75	
	Amount received for sale of old iron from furnaces	51 50	
	Amount received for extra vellum diplomas	39 00	
	Amount received for rent of room in basement, two months	5 00	
July 15	Amount paid for salaries for July, 1884		$2,771 00
Aug. 21	Amount paid for salaries for August, 1884		2,795 20
Aug. 21	Amount paid to E. H. Guppy & Son, stationery, ink, crayon, etc.		74 42
Aug. 21	Amount paid Henry D. Noyes & Co., periodicals for 1884–85		49 80
Aug. 21	Amount paid T. R. Morphy, carpentering repairs and material		30 25
Aug. 21	Amount paid L. Aubert, cleaning and laying carpet		9 80
Aug. 21	Amount paid John Stock Sons, hose and couplings		28 00
Aug. 21	Amount paid sundry papers, advertising Training Department		4 50
Sept. 18	Amount paid for salaries for September, 1884		2,880 20
Sept. 18	Amount paid Gilbert & Moore, desks, freight, and hauling		181 28
Sept. 18	Amount paid Tureman & Judah, chairs		69 35
Sept. 18	Amount paid A. L. Bancroft & Co., globes		11 50
Sept. 18	Amount paid Smith & Ryder, clock for Training Department		7 00
Sept. 18	Amount paid J. W. Cook, toweling, and cloth for penwipers		11 38
Sept. 18	Amount paid A. Waldteufel, Encyclopædia Britanica, Vol. 17		10 50
Sept. 18	Amount paid John Roach, repairing barometer		10 00
Sept. 18	Amount paid Farmers' Union, halyards for flagstaff		8 00
Sept. 18	Amount paid sundry persons, labor on grounds		105 10
Oct. 16	Amount paid for salaries for October, 1884		2,855 20
Oct. 16	Amount paid E. S. Bradlee, books for library		29 57
Oct. 16	Amount paid McNeill Bros., binding books		26 60
Oct. 16	Amount paid T. K. Black, janitor tools and supplies		66 40
Oct. 16	Amount paid T. R. Morphy, carpenter work		22 75
Oct. 16	Amount paid John Taylor & Co., galvanometer		20 00
Oct. 16	Amount paid L. Lion, carpet and mats		7 35
Oct. 16	Amount paid Chris. Hirth, plumbing for laboratory		6 85
Oct. 16	Amount paid Herald Co., advertising for stationery		1 50
Oct. 16	Amount paid John Rock, trees and plants		17 00
Oct. 16	Amount paid Milton Campbell, repairs to pumps		15 75
Oct. 16	Amount paid G. Douglas, hauling sand		5 00
Oct. 16	Amount paid Davis & Co., lawn mower knife		1 50
Nov. 26	Amount paid for salaries for November, 1884		2,930 20
Nov. 26	Amount paid Renton Coal Co., coal, freight, and hauling		235 86
Nov. 26	Amount paid Daunes & Van Doren, coal		215 00
Nov. 26	Amount paid E. B. Lewis, stationery		139 04
Nov. 26	Amount paid E. H. Guppy, stationery and ink		96 48
Nov. 26	Amount paid E. H. Guppy, piano cover and inkstands		6 00

FINANCIAL REPORT—Continued.

Date of Auditing.		Dr.	Cr.
1884.			
Nov. 23	Amount paid F. H. McCormick, crayon erasers		$45 75
Nov. 26	Amount paid S. C. V. Mill and Lumber Co., lumber for furniture and repairs		31 48
Nov. 26	Amount paid T. R. Morphy, carpenter work		10 50
Nov. 26	Amount paid Kocher & Blauer, repairing clock		4 00
Nov. 26	Amount paid A. R. Moody, repairing gong wires		1 50
Nov. 26	Amount paid J. C. Corcoran, plumbing repairs		37 94
Nov. 26	Amount paid C. D. Harvey, three hot water boilers, and putting in same		1,012 60
Nov. 26	Amount paid W. J. Wolcott, mason work on furnaces		175 25
Nov. 26	Amount paid J. C. Corcoran, plumbing work on furnaces		61 35
Nov. 26	Amount paid J. C. Courtenay, labor on furnaces		52 00
Nov. 26	Amount paid T. R. Morphy, carpenter work on furnaces		35 00
Nov. 26	Amount paid C. H. Allen, freight and hauling on furnaces		24 15
Nov. 26	Amount paid C. D. Harvey, additional boiler		272 00
Nov. 26	Amount paid S. C. V. Mill and Lumber Co., lumber for sundries		9 69
Nov. 26	Amount paid L. Ross & Son, grass and flower seed		28 66
Dec. 17	Amount paid for salaries for December, 1884		2,879 55
Dec. 17	Amount paid C. H. Allen, postage, express, and sundries, six months		81 55
Dec. 17	Amount paid Shaw & Callisch, chemicals		22 50
Dec. 17	Amount paid H. Laurilliard, tuning pianos		5 00
Dec. 17	Amount paid F. Kuchenbeiser, blacksmithing repairs		30 60
Dec. 17	Amount paid L. Manning, labor on furnace		22 00
Dec. 17	Amount paid Geo. B. McKee & Co., glazing, varnish, etc.		9 85
Dec. 17	Amount paid F. Schilling, repairs to locks, keys, etc.		4 30
Dec. 18	Amount paid A. L. Bancroft & Co., Readers		97 50
1885.			
Jan. 15	Amount paid for salaries for January, 1885		2,895 20
Jan. 15	Amount paid sundry persons, premium on insurance for $50,000		750 00
Jan. 15	Amount paid Daunes & Van Doren, coal		368 71
Jan. 15	Amount paid San José Gas Co., gas six months to December 31, 1884		49 35
Jan. 15	Amount paid Sunset Telephone-Telegraph Co., box rent, six months		15 00
Jan. 15	Amount paid W. J. Wolcott, material and mason work setting additional furnace		32 00
Jan. 15	Amount paid C. H. Allen, commencement expenses		47 75
Jan. 15	Amount paid R. P. Munroe, janitor supplies		18 95
Jan. 15	Amount paid McNeil Bros., printing and binding checks		12 50
Jan. 15	Amount paid Magazine of American History, subscription, 1885		5 00
Jan. 15	Amount paid J. Yocco, cups and basins		6 83
Jan. 15	Amount paid Farmers' Union, thermometers		2 72
Jan. 15	Amount paid J. C. Corcoran, plumbing repairs		18 65
Jan. 15	Amount paid Will & Finck, repairs to electrical apparatus		23 50
Jan. 15	Amount paid T. R. Morphy, carpentering repairs		5 25
Jan. 15	Amount paid Kocher & Blauer, repairs to clocks and bells		13 50
Feb. 19	Amount paid for salaries for February, 1885		2,905 20
Feb. 19	Amount paid McNeil Bros., blank books for spelling		95 00
Feb. 19	Amount paid T. K. Black & Co., feather duster		3 65
Feb. 19	Amount paid George Denne, frames for museum		4 00
Feb. 19	Amount paid John Stock Sons, stovepipe and repairs		2 35
Feb. 19	Amount paid C. H. Allen, payroll for labor on grounds		43 00
Feb. 19	Amount paid Farmer's Union, wire for fence		2 07
Mar. 19	Amount paid for salaries for March, 1885		2,905 20
Mar. 19	Amount paid E. B. Lewis, stationery		27 00
Mar. 19	Amount paid W. J. Wolcott, repairing furnace arch		10 00
Mar. 19	Amount paid Otto Finger, bills for manure and mowing		15 75
Mar. 19	Amount paid T. J. Gillespie, posts		10 00
Mar. 19	Amount paid David Walsh, repairing tools		9 35
Mar. 19	Amount paid sundry papers, advertising training department		2 75
Mar. 19	Amount paid T. J. Gillespie, dumbbells for training department		49 70

Financial Report—Continued.

Date of Auditing.		Dr.	Cr.
1885.			
April 16	Amount paid for salaries for April, 1885		$2,855 20
April 16	Amount paid Daunes & Van Doren, coal and cement		133 89
April 16	Amount paid E. H. Guppy, stationery		48 73
April 16	Amount paid Mrs. A. E. Bush, glass case for museum		6 00
April 16	Amount paid John Rock, trees and plants		13 25
April 16	Amount paid sundry papers, advertising for bids for tank house		3 50
April 23	Amount paid C. H. Allen, payroll for labor on grounds		26 00
April 30	Amount paid H. Rosenbaum, digging sewer and laying pipe		47 50
April 30	Amount paid Guy Douglas, plowing		59 50
May 12	Amount paid for salaries for May, 1885		2,880 20
May 12	Amount paid Arthur Nahl, diplomas		95 00
May 12	Amount paid McNeil Bros., binding and repairing books		42 50
May 12	Amount paid A. Waldteufel, Encyclopædia Britanica, volume 18		10 50
May 12	Amount paid E. H. Butler & Co., charts and readers		7 50
May 12	Amount paid George Denne, framing pictures		14 00
May 12	Amount paid L. Callisch, chemicals		26 70
May 12	Amount paid J. A. Belloli, hay, grain, and sundries		24 58
May 12	Amount paid Holbrook, Merrill & Stetson, hose, sprinklers, etc.		109 03
May 28	Amount paid C. H. Allen, postage, express, etc. for term		74 40
May 28	Amount paid C. H. Allen, commencement expenses		62 55
May 28	Amount paid Geo. B. McKee, slating, glazing, etc.		44 80
May 28	Amount paid A. H. Randall, sundries for classes		5 40
May 28	Amount paid Mrs. A. E. Bush, sundries for museum		2 20
May 28	Amount paid sundry persons, work on grounds		46 70
May 28	Amount paid Holbrook, Merrill & Stetson, hose, service cocks, etc.		77 75
May 28	Amount paid Davis & Co., lawn mower		24 00
May 28	Amount paid Leonard & Ellis, machine oil		12 00
May 28	Amount paid S. C. V. Mill & Lumber Co., lumber		9 80
May 28	Amount paid C. H. Allen, freight and sundry expenses improving grounds		26 15
May 28	Amount paid C. H. Allen, express, discount, and exchange on sundry warrants		20 00
June 18	Amount paid for salaries for June, 1885		2,855 20
June 18	Amount paid A. L. Bancroft & Co., four volumes Bancroft's historical works		22 00
June 18	Amount paid T. K. Black, janitor supplies		58 28
June 18	Amount paid R. P. Munroe, janitor supplies		16 00
June 18	Amount paid Chas. A. Hagan, gas fixtures		14 45
June 18	Amount paid H. Deischinger, brick		16 00
June 18	Amount paid James Hart, hand grenades		12 75
June 18	Amount paid Chas. Bernhardt, hand grenades		12 00
June 18	Amount paid San José Foundry, cutting pipe and repairing pump		24 25
June 18	Amount paid Daunes & Van Doren, coal and cement		7 80
June 18	Amount paid Andrew Hansen, services as night watchman		14 00
June 18	Amount paid sundry persons, work on grounds		30 75
July 16	Amount paid San José Gas Company, gas 6 months, to June 30, 1885		25 55
July 16	Amount paid Sunset Telephone-Telegraph Company, box rent 6 months		15 00
July 16	Amount paid Combs, Blanchard & O'Neil, cutting stone		3 00
July 16	Amount paid C. H. Allen, wood for engine		45 00
July 16	Amount paid A. McGinley, painting tank		6 00
Aug. 14	Amount paid Mrs. A. E. Bush, specimens for museum		11 00
Aug. 14	Amount paid E. H. Guppy & Son, stationery		7 65
Sept. 18	Amount paid Bank of San José, expenses on coin paid in February		9 70
	Balance of appropriation, close of 36th fiscal year		289 94
	Balance of Tuition Fund, close of 36th fiscal year		3,462 51
	Totals	$44,828 14	$44,828 14

Summary of Above Account.

		Dr.	Cr.
Total income for 36th fiscal year		$44,828 14	
Amount expended for salaries of teachers and janitor			$33,113 20
Amount expended for stationery, ink, crayon, etc.			500 82
Amount expended for fuel			952 46
Amount expended for miscellaneous and janitor's supplies			245 16
Amount expended for gas			74 90
Amount expended for chemicals			49 20
Amount expended for postage, express, freight, etc.			185 65
Amount expended for furniture			291 81
Amount expended for apparatus			105 32
Amount expended for books and periodicals			295 47
Amount expended for diplomas			95 00
Amount expended for commencement exercises			110 30
Amount expended for telegraph box rent			30 00
Amount expended for advertising Training Department and for stationery bids			8 75
Amount expended for frames and specimens for museum			23 20
Amount expended for premium on insurance for three years			750 00
Amount expended for new boilers and repairs to heating apparatus			1,735 60
Amount expended for carpenter work			33 25
Amount expended for lumber			50 97
Amount expended for plumbing repairs and additional gas fixtures			59 24
Amount expended for miscellaneous repairs			185 85
Amount expended for connecting with city sewer			47 50
Expenditures for Grounds.			
Amount expended for salaries of gardeners	$1,294 35		
Amount expended for additional labor	324 45		
Amount expended for hose, couplings, and sprinklers	214 78		
Amount expended for trees, plants, and seeds	58 91		
Amount expended for manure and sand	16 25		
Amount expended for tools	25 50		
Amount expended for repairs to pump and tools	58 10		
Amount expended for posts and fence wire	12 07		
Amount expended for fuel for engine	47 80		
Amount expended for hay, grain, and sundry supplies	39 18		
Sundry expenses, improving grounds	40 65		
			2,132 04
Balance of total income at close of 36th fiscal year			3,752 45
Totals		$44,828 14	$44,828 14

FINANCIAL REPORT

Of the Branch Normal School, Los Angeles, for the Thirty-sixth Fiscal Year, ending June 30, 1885.

Date of Auditing.		Dr.	Cr.
1884.			
	Balance of appropriation for 35th fiscal year, on hand July 1, 1884, as per last report	$856 82	
	Balance in hands of Ira More, as per last report	40 75	
	Amount of appropriation for 36th fiscal year	15,000 00	
	Amount received by Ira More for rent of rooms, tuition, and sundries, 36th fiscal year	584 90	
July 15	Amount paid for salaries for July, 1884		$900 05
Aug. 5	Amount paid M. W. Childs, irrigating pipe		111 00
Aug. 21	Amount paid for salaries for August, 1884		930 05
Aug. 21	Amount paid Los Angeles City Water Company, water, July and August, 1884		20 00
Aug. 21	Amount paid John E. Wright, irrigating		20 00
Aug. 21	Amount paid McGarvin & White, tools for grounds		9 25
Aug. 21	Amount paid E. F. Taylor, laying walks		8 25
Sept. 18	Amount paid Hellman, Stassforth & Co., desks		320 40
Sept. 18	Amount paid Weinshank & Knox, putting in gas pipes and fixtures		292 81
Sept. 18	Amount paid Newton, Chaplin & Co., repairing blackboards		80 40
Sept. 18	Amount paid John E. Wright, irrigating		7 00
Sept. 18	Amount paid Meyberg Bros., dishes for laboratory		3 20
Sept. 18	Amount paid Times-Mirror Co., advertising		2 80
Sept. 18	Amount paid Express Publishing Co., advertising		2 00
Sept. 18	Amount paid City of Los Angeles, water, January, February, and June, 1884		30 00
Sept. 18	Amount paid Los Angeles Woolen Mill, pumping, January and May, 1884		30 00
Sept. 18	Amount paid for salaries for September, 1884		980 05
Oct. 16	Amount paid for salaries for October, 1884		980 05
Oct. 16	Amount paid Phil. Hirschfeldt & Co., stationery and periodicals		125 25
Oct. 16	Amount paid Los Angeles City Water Company, water, September and October, 1884		20 00
Oct. 16	Amount paid W. C. Furrey, hardware, ladders, and janitor supplies		22 25
Oct. 16	Amount paid E. F. Taylor, carpenter work		8 45
Nov. 26	Amount paid for salaries for November, 1884		980 05
Nov. 26	Amount paid Walter S. Maxwell, coal		98 51
Nov. 26	Amount paid W. C. Furrey, electric clock and bells		43 00
Nov. 26	Amount paid Los Angeles Furniture Company, chairs		30 00
Nov. 26	Amount paid W. F. Taylor, putting down seats		5 00
Nov. 26	Amount paid Patrick Boland, plowing		22 50
Nov. 26	Amount paid C. S. Graves, labor on grounds		24 00
Dec. 18	Amount paid for salaries for December, 1884		980 05
Dec. 18	Amount paid Gilbert & Moore, desks		250 00
Dec. 18	Amount paid Newton, Chaplin & Co., glass and glazing		10 43
Dec. 18	Amount paid Los Angeles Gas Co., gas from August 29 to October 31, 1884		6 65
Dec. 18	Amount paid John E. Wright, irrigating trees		8 50
1885.			
Jan. 15	Amount paid for salaries for January, 1885		980 05
Jan. 15	Amount paid Phil. Hirschfeld & Co., stationery, periodicals, and books		90 18
Jan. 15	Amount paid Los Angeles City Water Co., water, November and December, 1884		53 33
Jan. 15	Amount paid Los Angeles Gas Co., gas for November, 1884		2 45
Jan. 15	Amount paid E. F. Taylor, putting up desks		23 40
Jan. 15	Amount paid J. M. Griffith & Co., lumber		21 95
Jan. 15	Amount paid Newton, Chaplin & Co., oil for floors		4 25

Financial Report—Continued.

Date of Auditing.		Dr.	Cr.
1885.			
Feb. 19	Amount paid for salaries for February, 1885		$980 05
Feb. 19	Amount paid Preuss & Peroni, chemicals and laboratory apparatus		79 43
Feb. 19	Amount paid A. L. Bancroft, fourteen volumes Bancroft's historical works		77 00
Feb. 19	Amount paid F. J. Culver, five volumes "Beacon Lights of History"		12 50
Feb. 19	Amount paid Los Angeles Furniture Co., seats for laboratory		10 00
Feb. 19	Amount paid Los Angeles Gas Co., gas pipe and connections		15 00
Feb. 19	Amount paid M. S. Baker & Co., repairing pump		16 50
Mar. 19	Amount paid for salaries for March, 1885		980 05
Mar. 19	Amount paid W. S. Maxwell, coal		140 10
Mar. 19	Amount paid Los Angeles City Water Co., water, January and February, 1885		92 00
Mar. 19	Amount paid Los Angeles Gas Co., gas for December, 1884, and January and February, 1885		5 25
Mar. 19	Amount paid R. W. Pridham, binding magazines		9 00
April 16	Amount paid for salaries for April, 1885		980 05
April 16	Amount paid Phil. Hirschfeld & Co., stationery and periodicals		51 90
April 16	Amount paid Times-Mirror Printing Co., printing programmes		15 00
April 16	Amount paid California Fire Apparatus Manufacturing Co., sprayer and hose		15 60
April 16	Amount paid B. F. Coulter, pumping		67 50
April 16	Amount paid Los Angeles City Water Co., water for March, 1885		26 00
April 16	Amount paid Los Angeles Gas Co., gas for March, 1885		4 90
April 16	Amount paid W. B. Davis, work on grounds		42 00
May 12	Amount paid for salaries for May, 1885		980 05
May 12	Amount paid Arthur Nahl, diplomas		67 30
May 12	Amount paid Los Angeles City Water Co., water for April, 1885		40 65
May 28	Amount paid Los Angeles Gas Co., gas for April, 1885		3 15
May 28	Amount paid Hartford Fire Insurance Co., premium on $3,000 insurance		54 00
May 28	Amount paid Kremer & Melzer, premium on $5,000 insurance		90 00
May 28	Amount paid Los Angeles City Water Co., water for May, 1885		50 00
June 18	Amount paid for salaries for June, 1885		900 05
June 18	Amount paid Phil. Hirschfeld & Co., stationery		62 23
June 18	Amount paid A. C. Jones, rent of opera house for commencement		31 80
June 18	Amount paid Times-Union Printing Co., programmes		15 00
June 18	Amount paid Los Angeles Furniture Co., office chairs		126 00
June 18	Amount paid Geo. E. Fuller, reading desk and blackboard erasers		58 50
June 18	Amount paid Weinshank & Knox, plumbing		39 75
June 18	Amount paid S. M. Perry, connecting water system		103 75
June 18	Amount paid Los Angeles City Water Co., water part of June, 1885		20 00
June 18	Amount paid Los Angeles Gas Co., gas for May, 1885		7 00
June 18	Amount paid John E. Wright, work on grounds		14 75
July 16	Amount paid Geo. W. Welch, books for library		483 97
July 16	Amount paid W. C. Furrey, hardware and electrical apparatus		56 40
July 16	Amount paid Newton, Chaplin & Co., repairing blackboards and glazing		21 13
July 16	Amount paid V. Beaudry, water for part of June, 1885		15 00
July 16	Amount paid Weinshank & Knox, materials and plumbing		33 50
July 16	Amount paid New England Publishing Co., periodicals		6 25
July 16	Amount paid Los Angeles Gas Co., gas for June, 1885		1 75

FINANCIAL REPORT—Continued.

Date of Auditing.			Dr.	Cr.
1885.				
Aug. 20	Amount paid Preuss & Pironi, chemicals			$16 55
Aug. 20	Amount paid F. H. Angell, painting and repairing blackboards			50 75
	Bills Paid by Ira More from Petty Cash Fund.			
	Amount expended for freight, express, and cartage	$37 95		
	Amount expended for postage	39 50		
	Amount expended for discount on warrants	22 00		
	Amount expended for telegrams	7 85		
	Amount expended for books and newspaper subscription	8 10		
	Amount expended for labor on grounds	102 75		
	Amount expended for sand for grounds	78 00		
	Amount expended for grading bank on grounds	149 00		
	Amount expended for water	18 34		
	Amount expended for graduating expenses	31 20		
	Amount expended for repairs	10 10		
	Amount expended for laboratory supplies	2 55		
	Amount expended for advertising	2 65		
	Amount expended for extra labor of Janitor	5 00		
	Total expenditure from Petty Cash Fund			514 99
	Balance of appropriation at the close of thirty-sixth fiscal year			350 15
	Balance of Petty Cash Fund in hands of Ira More			110 66
	Totals		$16,482 47	$16,482 47

SUMMARY OF ABOVE REPORT.

	Dr.	Cr.
Total income for thirty-sixth fiscal year	$16,482 47	
Amount expended for salaries of teachers and Janitor		$11,550 60
Amount expended for stationery		239 88
Amount expended for fuel		238 61
Amount expended for water		482 82
Amount expended for gas		31 15
Amount expended for diplomas		67 30
Amount expended for commencement exercises		93 00
Amount expended for insurance		144 00
Amount expended for chemicals and laboratory supplies		101 73
Amount expended for hardware and miscellaneous supplies		86 15
Amount expended for postage, express, telegrams, and sundries		119 75
Amount expended for repairs		193 56
Amount expended for books and periodicals		686 50
Amount expended for furniture		787 40
Amount expended for putting in gas pipes and fixtures		307 81
Amount expended for connecting with water system, and miscellaneous plumbing		177 00
Amount expended for electric clock and bells		43 00
Amount expended for lumber and carpenter work		67 05
Amount expended for irrigating pipe		111 00
Amount expended for labor on grounds		241 50
Amount expended for tools for grounds		24 85
Amount expended for grading bank, and for sand		227 00
Balance at close of thirty-sixth fiscal year		460 81
Totals	$16,482 47	$16,482 47

Submitted by Executive Committee.

RALPH LOWE.
T. ELLARD BEANS.
L. ARCHER.

REPORT OF PRINCIPAL OF STATE NORMAL SCHOOL, SAN JOSE.

To the Board of Trustees of the California State Normal Schools:

Gentlemen: I have the honor of submitting the following report of the Normal School in San José, under your charge, for the school year ending May 21, 1885:

STATISTICAL.

During the year there have applied for admission two hundred and thirty-nine pupils. These applied for and were admitted to classes as follows:

Applied for Senior Class	13	Admitted to Senior Class	1
Applied for Second Term, Middle Class	26	Admitted to Second Term, Middle Class	5
Applied for First Term, Middle Class	49	Admitted to First Term, Middle Class	13
Applied for Second Term, Junior Class	52	Admitted to Second Term, Junior Class	40
Applied for First Term, Junior Class	99	Admitted to First Term, Junior Class	114
Total number examined	239	Total number admitted	173

Rejected, or assigned to Preparatory Class, 66.
Admitted to First Term, Junior Class, on Grammar School Diplomas, 38.
Admitted to First Term, Junior Class, on High School Diplomas, 15.
Graduates of High Schools admitted, 28.
Graduates of other schools admitted, 3.
Admitted by transfer from Branch Normal School, 1.

Many of those admitted to Junior Classes were pupils who had applied for admission to advanced classes. Applicants for admission have represented forty-three counties of this State, five other States, and one Territory.

Forty-six counties have had representatives in the school during the past year, distributed as follows:

Alameda	34
Amador	6
Butte	17
Calaveras	3
Colusa	9
Contra Costa	23
Del Norte	1
El Dorado	2
Fresno	11
Humboldt	16
Kern	4
Lake	7
Lassen	3
Marin	11
Mariposa	4
Mendocino	1
Merced	1
Modoc	3
Mono	2
Monterey	8
Napa	5
Nevada	12
Placer	15
Plumas	2
Sacramento	17
San Benito	3
San Diego	1
San Francisco	28
San Joaquin	19
San Mateo	5
Santa Barbara	1
Santa Clara	173
Santa Cruz	26
Shasta	5
Sierra	6
Siskiyou	1
Solano	10
Sonoma	13
Stanislaus	7
Sutter	5
Tehama	1
Trinity	4
Tulare	4
Tuolumne	3
Yolo	6
Yuba	3

Counties not represented: Alpine, Inyo, Los Angeles, San Bernardino, San Luis Obispo, and Ventura.

Besides students residing in this State, there have been representatives from seven other States and two Territories. Of these, fifteen are residents of the State of Nevada.

It will be seen that the proportion of pupils from Santa Clara County has been diminished, being but thirty per cent this year, against thirty-six per cent last year.

The highest enrollment during the year was 459, in August; average enrollment, 429; average daily attendance, 421; average percentage of attendance, 98.3; average percentage of punctuality, 99.5.

The following table shows the attendance in the several classes, and the school, for the twelve years during which I have had the honor to act as Principal. From 1873 to 1876 the course of study was but two years, and there was no middle class.

	1873–74.	1874–75	1875–76	1876–77.	1877–78	1878–79	1879–80	1880–81	1881–82	1882–83.	1883–84.	1884–85.
Senior	52	66	54	53	69	60	57	52	96	177	180	175
Middle				164	207	189	169	181	237	209	196	137
Junior	114	262	380	242	224	223	184	199	215	247	224	216
Preparatory	32	62	67	78	103	76	58	57	52	48	45	38
Total in Normal	198	390	501	537	603	548	468	489	600	681	645	566
Training Department	114	98	134	128	109	113	109	101	103	115	115	135
Grand total	312	488	635	665	712	661	577	590	703	796	760	701

The falling off of attendance during the past two years, and especially during the last year, comes from several causes: First—The grade of admission has been raised nearly twenty per cent, and none admitted from places where Grammar Schools provide for graduation, except upon the Grammar School Diploma or an equivalent course. This has worked out the beneficial result of having pupils fit themselves better before applying for admission. Restricting admissions to the first week of the term, save in exceptional cases, has also had its effect. Second—The opening of the Branch School at Los Angeles has drawn the pupils from the southern counties to that school. Third—Your honorable body, on the nineteenth of December, 1883, adopted the following resolution: "*Resolved*, That it is the opinion of the Board of Trustees that the teachers and Principals of the Normal Schools should decline any invitation to attend County Institutes, during the sessions of the schools, except by consent of the Executive Committee or the local committee at Los Angeles."

Accepting this as an indication of the feeling of the Board that our work should be devoted more entirely to the schools, I have declined nearly every invitation to attend County Institutes, and our school has been represented in but very few. You, gentlemen, are of course fully aware that the school has been built up and kept up by our making its work known, by coming in contact with people having children to educate, and by stimulating young teachers to try to fit themselves better for their work.

In 1883 a resolution was adopted requiring graduates to report to the Principal of the school twice each year. We have secured reports, also, from nearly all the graduates of the classes of 1882. From these reports I am able to submit another set of statistics, of great importance in showing the usefulness of the school:

DATE.	No. Graduated.	No. who are known to have Taught.	No. not Reported as Teaching.
May, 1882	74	71	3
December, 1882	8	7	1
May, 1883	85	80	5
December, 1883	50	48	2
May, 1884	38	33	5
Totals	255	239	16

Of these five classes, nearly ninety-four per cent have taught, to our certain knowledge. Of the sixteen not reported as having taught, two have died, two have been prevented from teaching by death in the family, three have married without teaching, three have engaged in other business or are at home, and five have not been heard from. Some of the latter are doubtless teaching. Of the fifty-one graduated in December, 1884, more than one half are already teaching. We are often asked, "Do your graduates teach?" The above showing gives a most emphatic answer, and speaks volumes for the spirit and usefulness of the school. As already stated, a class of fifty-one was graduated in December, 1884, and we now present a class of fifty-seven for graduation. These have completed, to the satisfaction of the Faculty, the course of study, and have taught successfully in the Training Department. We are, therefore, prepared to send them out with our recommendation.

GENERAL.

We have now had a full year in which to test the gains and losses to be realized from the changes made in our Course of Study, and in the regulations for admission.

We have admitted to the Junior Class thirty-eight on Grammar School diplomas, and fifteen on High School diplomas. Thirteen graduates of High Schools have been admitted to more advanced classes. The pupils admitted on Grammar School diplomas have, as far as possible, been kept in separate classes, to test our grade of admission on examination. The result has satisfied us that it is safe to receive Grammar School diplomas—*not certificates*—from counties where the County Boards give the matter their attention. It also appears that we cannot advance our grade for admission without putting the Normal School out of the reach of the Grammar Schools of the State, as now organized.

The fact that more than half of the graduates of High Schools who present themselves can reach only the Junior Class in the Normal School, shows that much time is wasted in pursuing the so called advanced studies that might, with greater profit, be devoted to elementary work.

We have carried out, as far as possible, the Course of Study, save that, by virtue of a resolution adopted in December, we have omitted Astronomy, and a part of the Language work, from the Senior Year. The course is yet too much crowded, and if the same amount of professional work is hereafter to be insisted upon, the time should be lengthened.

The records of the school show that of one hundred pupils who have graduated, after taking the *full* course, *sixty* have found it necessary to take three and a half years, or more, in which to do the work.

A reference to the statistics showing how many of our graduates are teaching, sufficiently proves that graduates from the school are in demand. This demand must come because they do satisfactory work. A few of the counties, mostly for local reasons, do not recognize our diplomas as evidence of fitness to teach. Even in these counties, it is not claimed that the graduates are not good teachers. So far as I know, there are now but four counties not granting certificates upon Normal School diplomas. As, however, this is a matter that can be changed at any meeting of a County Board, we cannot know definitely what the usage is. It perhaps should be said that, while the action of the Boards in these four counties in nowise injures the Normal Schools, it can but be an injury to the counties. Each county pays its proportionate amount toward the support of the Normal Schools; but, by refusing to recognize their diplomas, it is, in effect, cut off from any benefit to be derived from their work. For pupils will not be apt to go to a Normal School from a county where its diploma is not recognized; nor will graduates willingly seek employment under a County Board that does not consider the signatures of the Governor of the State, the Superintendent of Public Instruction, and the Trustees and Faculty of the Normal School, a guarantee of qualification quite as good as the signature of the County Board.

The law organizing the State Normal School, in Section 1503 of the Political Code, contemplates the establishment of a past-graduate course of study, and, in the following language, gives to the Board of Trustees power to provide for it: "In like manner they shall issue to those who worthily complete the past-graduate course, a professional diploma. To the persons receiving this diploma the State Board of Examination shall grant an educational diploma." In my opinion the time has come when such a course should be provided for. A large number of graduates have been engaged in teaching for years, and have found the necessity for a more extended course of study. They have acquired the means, and, if we may judge from a tolerably extensive correspondence, have also the desire to pursue such a course. It is hardly probable that the past-graduate course will be required *every year*. Perhaps once in three years, in one of the schools, provision should be made for this course, and graduates, under certain limitations, should be privileged to return and obtain an educational diploma. At present, our graduates are fitted here only for teaching in the grammar schools, and in the advanced course in the grammar schools. There are some hundreds of schools in the State reaching somewhat higher than this, for which teachers should be provided. A year in school, after the experience gained in actual teaching, and in applying the methods given, would be of incalculable value to any earnest teacher. This course of study should be largely professional—consisting of a searching review of the subjects to be taught, together with the methods of teaching them; a thorough study of the science and philosophy of education; and such academic work as may be thought necessary for practical use or culture. This additional course need add no very considerable expense, and would not only add to the usefulness and reputation of the school, but would serve as a healthful stimulant to all graduates to strive to fit themselves for doing better work.

CONCLUSION.

The work of the school for the year has been carried on harmoniously. Professor G. Schoof, the newly appointed teacher of drawing, is an enthusiast in his work, and what was one of the weakest points in our course, has been made strong. Aside from what has already been alluded to, I have no recommendation to make.

Thanking you, in behalf of the Faculty and pupils, for your kind and intelligent interest in the school, I have the honor to subscribe myself,

Very respectfully, your obedient servant,

CHARLES H. ALLEN, Principal.

San José, May, 1885.

REPORT OF PRINCIPAL OF THE BRANCH NORMAL SCHOOL, LOS ANGELES.

May 9, 1885.

To the honorable the State Normal Board of California:

Gentlemen: The past year in the history of the Branch Normal School has been a fair continuation of the two previous successful years since its organization. The numbers show a steady increase. In 1882–3 the aggregate attendance was 127; in 1883–4, it was 187; in 1884–5, the year just closing, it is 231. The rule admitting at the beginning of terms only, has been rigidly enforced, with, we believe, the best results. The rule admitting without examination on certificate of promotion from grammar grade of public schools, has been found to work well thus far, though possibly the number of those who are not promoted at the end of their first term's work is increased thereby.

We find the ratio of young men to the whole number of the school about the same as in the school at San José, or about one eighth of the whole number. The last report of the Superintendent of Public Instruction shows the men to constitute about one fourth the entire number of teachers in the State, and their number relatively diminishing from year to year. One is naturally led to inquire where this is to end. Is it but the fashion of the hour, and will the teaching work of the State be more equally divided between the sexes in the future; or is man to step gracefully down and out, yielding the instruction of the coming generations to woman alone? The question of woman's greater fitness for teaching all grades cannot be settled on any *a priori* grounds, and time, which at last sets all things even, will settle this, to us, interesting question.

The necessity of special schools to fit for special work in life, is becoming more apparent from year to year. We no longer question the fitting of lawyers, physicians, and preachers in special schools, although the opposition to it was once great; and we are rapidly approaching the stage when the mechanic arts or trades, with farming and stock raising, shall be taught in the same way. Normal or special schools for fitting teachers have encountered much opposition, but are steadily winning their way to public favor, as their work is better understood. A few, however, of the charges formerly brought against them are still repeated by those who take little pains to ascertain the facts of the case.

It is said that Normal graduates teach but little, the girls marrying and the young men leaving the profession for other work. The older schools are now able to refute this statement. The Albany Normal School started in 1844. I have figured up the record of the first five classes, graduating from 1845 to 1848, and find the average time those graduates have taught to be 11.4 years, and the record not yet closed, a considerable number being yet active teachers. The records of Bridgewater, published a few years since, of Bloomington, published in 1882, at the end of twenty-five years of work, and of several other of the earlier schools, show an equally good record. It may then safely be stated that twelve years of good effective work will be returned to the State for the three years' fitting course which she has placed within the reach of these Normal graduates.

Another statement frequently made by the friends as well as the opponents of special training schools for teachers is that the supply will soon be greater than the demand; the market will be overstocked; we are educating more than can find places. A little arithmetic will not here be out of place: The number of teachers employed by the State is given in the report of the Superintendent of Public Instruction at four thousand. Ruling out accidental and occasional elements, we may safely say that more than three thousand of this number depend upon teaching for a livelihood. Horace Mann states that three years was the average school life of the teachers of his day. Young women will marry, and young men leave this for other trades or professions. Since then, as he foresaw, the term has been increased, the teachers specially educated remaining longer in the field, until the average term in this State is from four to five years. Such statistics as can be gathered show that it will not exceed this estimate. More than six hundred teachers are needed each year to take the place of those who retire from the work. The Normal Schools now graduate about one hundred and fifty. It does not seem likely that the supply will exceed the demand for many years to come certainly. In confirmation of this it may be stated that although the school at San José has been sending out its graduates for more than twenty years, less than twelve per cent of the teachers in the State are graduates of California Normal Schools, while six per cent come from the Normal Schools of other States, making but eighteen per cent, or less than one fifth, graduates of any Normal School whatever.

We present a class of twenty-one for graduation at this time. This is the third, the two previous classes having gone out in May and December of last year. Of these the first, numbering twenty-two, have all taught in the public schools during the past year. Most of the Christmas class are also teaching, though it is not easy to find places at that time in the year.

The previous arrangement with the City School Board, by which a portion of the public schools is set apart for Normal Training School purposes, has been continued during the past year with the best results. The Normal pupils get just the kind of practice-teaching they need as a preparation for future work, while the schools themselves are in no way injured thereby, but take rank in advancement with the best in the city. The catalogue of this school is now given for the first time, and I desire specially to commend the zeal and efficiency of the teachers employed in it.

With warmest commendations of my co-workers in the school, to whose untiring efforts so much of its success is due,

I remain, very respectfully,

IRA MORE, Principal.

FINANCIAL REPORT

Of the State Normal School, San José, for the Thirty-seventh Fiscal Year, ending June 30, 1886.

Date of Auditing.		Dr.	Cr.
1885.	*General Fund.*		
	Balance of Tuition Fund on hand July 1, 1885, as per last report	$3,462 51	
	Amount of appropriation for thirty-seventh fiscal year	38,000 00	
	Amount of tuition money received for six months ending December 31, 1885	1,751 50	
	Amount of tuition money received for six months ending June 30, 1886	1,580 25	
	Amount of library receipts for book rent, fines, etc.	130 50	
	Amount received for rent of rooms	20 50	
July 16	Amount paid for salaries for July, 1885		$2,690 00
Aug. 20	Amount paid for salaries for August, 1885		2,690 00
Aug. 20	Amount paid L. Aubert, cleaning and laying carpets		17 20
Aug. 20	Amount paid Schemmel & Denike, tuning and repairing pianos		5 00
Aug. 20	Amount paid E. H. Guppy & Son, stationery, etc.		48 85
Aug. 20	Amount paid Daunes & Van Doren, coal for engine		137 93
Aug. 20	Amount paid C. H. Allen, wood for engine		44 00
Aug. 20	Amount paid M. Christiansen, spreading gravel		104 00
Aug. 20	Amount paid Guy Douglas, watering and rolling road		14 00
Aug. 20	Amount paid B. Sepulveda, watering and rolling road		18 00
Aug. 20	Amount paid A. Hansen, work on grounds		5 00
Aug. 20	Amount paid sundry persons, rolling road		9 00
Sept. 18	Amount paid for salaries for September, 1885		2,711 25
Sept. 18	Amount paid Henry D. Noyes & Co., periodicals for 1885–86		44 30
Sept. 18	Amount paid A. Waldteufel, Encyclopædia Britanica, vol. 19		10 50
Sept. 18	Amount paid McNeil Bros., bookbinding		17 00
Sept. 18	Amount paid Herald Company, advertising Training Department and for supplies		3 30
Sept. 18	Amount paid sundry persons, memorial decorations (U. S. Grant)		18 52
Sept. 18	Amount paid David Walsh, blacksmithing		14 25
Sept. 18	Amount paid Baker & Hamilton, grindstone		5 43
Oct. 15	Amount paid for salaries for October, 1885		2,828 50
Oct. 15	Amount paid S. H. Wagener, chemicals		14 11
Oct. 15	Amount paid J. W. Cook, toweling		9 00
Oct. 15	Amount paid George Denne, framing pictures		5 40
Oct. 15	Amount paid San José Mercury, advertising Training Department and for proposals		5 30
Oct. 15	Amount paid F. Kuchenbeiser, blacksmithing repairs		61 69
Oct. 15	Amount paid J. Boschken, tools and hardware		58 67
Oct. 15	Amount paid San José Foundry, repairs to engine and tools		24 60
Oct. 15	Amount paid A. W. White, repairs to artesian well		18 00
Oct. 15	Amount paid T. J. Rivers, painting		3 75
Nov. 12	Amount paid for salaries for November, 1885		2,732 65
Nov. 12	Amount paid S. C. V. M. & L. Co., library cases		61 50
Nov. 12	Amount paid J. P. Jarman, painting and graining cases		16 00
Nov. 12	Amount paid R. Royce, Librarian, bill of postage, express, etc.		85 75
Nov. 12	Amount paid Davis & Co., hardware		5 50
Nov. 12	Amount paid J. W. Edmundson, stair corners		14 50
Nov. 12	Amount paid F. Schilling, hardware		6 25
Nov. 12	Amount paid J. A. Belloli, supplies for grounds		36 80
Nov. 12	Amount paid S. C. V. M. & L. Co., lumber, etc.		14 26
Nov. 12	Amount paid George W. Welch, books		14 76
Nov. 12	Amount paid Davis & Co., chains and ropes		12 50
Nov. 12	Amount paid T. R. Morphy, carpentering		10 50
Nov. 12	Amount paid Dockery & Co., gopher exterminator		6 00
Nov. 12	Amount paid Farmers' Union, supplies for grounds		9 28
Dec. 11	Amount paid for salaries for December, 1885		2,732 65

Financial Report—Continued.

Date of Auditing.		Dr.	Cr.
1885.			
Dec. 11	Amount paid Daunes & Van Doren, coal		$579 04
Dec. 11	Amount paid E. H. Guppy & Son, stationery, etc.		59 41
Dec. 11	Amount paid E. B. Lewis, stationery and crayon		70 20
Dec. 11	Amount paid George W. Welch, maps and charts		25 00
Dec. 11	Amount paid Mary E. B. Norton, botany		8 00
Dec. 11	Amount paid S. H. Wagener, chemicals		17 54
Dec. 11	Amount paid C. Sproat, apparatus		12 00
Dec. 11	Amount paid C. W. Fischer, bottles for museum		18 14
Dec. 11	Amount paid Mrs. A. E. Bush, museum expenses		6 80
Dec. 11	Amount paid T. J. Rivers, lettering cases		10 45
Dec. 11	Amount paid Geo. B. McKee & Co., glazing, slating, etc.		25 75
Dec. 11	Amount paid McNeil Bros., bookbinding		15 30
Dec. 11	Amount paid E. H. Butler & Co., readers		3 24
Dec. 11	Amount paid H. A. Saxe, bulbs for grounds		29 00
Dec. 11	Amount paid D. J. Hobson, services as watchman		20 00
Dec. 11	Amount paid A. Hansen, labor on grounds		36 00
Dec. 11	Amount paid G. Douglas, manure and rolling road		12 00
Dec. 11	Amount paid J. Boschken, scythes		4 70
Dec. 11	Amount paid A. L. Bancroft & Co., books		18 00
Dec. 11	Amount paid W. H. Beehler, book		3 00
Dec. 11	Amount paid T. W. Petersen & Co., brick		6 40
Dec. 11	Amount paid C. H. Allen, payroll on grounds and repairs		100 75
Dec. 11	Amount paid John Rock, trees		40 00
Dec. 11	Amount paid Milton Campbell, repairing tools		20 50
Dec. 11	Amount paid Chas. A. Hagan, hose and sprinkler		14 00
1886.			
Jan. 14	Amount paid for salaries for January, 1886		2,713 90
Jan. 14	Amount paid San José Gas Company, gas six months to December 31, 1885		38 35
Jan. 14	Amount paid Sunset Telephone Company, district box rent six months		15 00
Jan. 14	Amount paid C. H. Allen, commencement expenses, December, 1885		53 55
Jan. 14	Amount paid H. W. A. Nahl, diplomas		31 50
Jan. 14	Amount paid F. Goldstein, lettering diplomas		22 50
Jan. 14	Amount paid Geo. W. Welch, maps		24 50
Jan. 14	Amount paid E. B. Lewis, Statistician		4 00
Jan. 14	Amount paid subscription to magazine, American History, 1886		4 00
Jan. 14	Amount paid T. Soper, carpenter work		9 75
Jan. 14	Amount paid D. J. Hobson, watchman		10 00
Jan. 14	Amount paid R. Royce, library expenditures		9 30
Jan. 14	Amount paid Geo. Gilbert, hay		7 00
Feb. 18	Amount paid for salaries for February, 1886		2,638 90
Feb. 18	Amount paid Sterling Furniture Company, desk for library		22 60
Feb. 18	Amount paid Indianapolis Manufacturing Company, step ladder, chairs		8 50
Feb. 18	Amount paid T. Soper, carpenter work		13 75
Feb. 18	Amount paid L. Lion, carpet for platform		12 25
Feb. 18	Amount paid Geo. Denne, mounting maps, etc.		9 25
Feb. 18	Amount paid R. P. Munroe, janitor supplies		8 05
Feb. 18	Amount paid R. P. Munroe, repairs to battery and clock		3 50
Feb. 18	Amount paid E. H. Guppy & Son, stationery, etc.		120 61
Feb. 18	Amount paid Geo. B. McKee & Co., glazing, etc.		73 30
Feb. 18	Amount paid R. Summers, repairs to tank house after storm		99 24
Feb. 18	Amount paid J. R. Lenox, hay		14 21
Feb. 18	Amount paid Davis & Co., tools		2 75
Feb. 18	Amount paid Milton Campbell, repairs to tank house		24 32
Feb. 18	Amount paid F. Kuchenbeiser, repairs to fence, tank house, and tools		19 95
Feb. 25	Amount paid A. Hansen, work on grounds		60 00
Feb. 25	Amount paid V. Pachaud, plowing		45 50
Feb. 25	Amount paid D. J. Hobson, watchman		15 00
Mar. 18	Amount paid for salaries for March, 1886		2,663 90
Mar. 18	Amount paid Daunes & Van Doren, coal		137 75
Mar. 18	Amount paid A. Friant & Co., manilla paper		4 00

Date of Auditing.		Dr.	Cr.
1886.			
Mar. 18	Amount paid John Rock, trees and plants		$78 25
Mar. 18	Amount paid A. Hansen, work on grounds		33 00
Mar. 18	Amount paid D. J. Hobson, watchman		7 50
April 22	Amount paid for salaries for April, 1886		2,663 90
April 22	Amount paid Daunes & Van Doren, coal		116 37
April 22	Amount paid S. H. Wagener, chemicals		32 15
April 22	Amount paid E. A. Bates, museum supplies		14 32
April 22	Amount paid L. Callisch, drugs		3 90
April 22	Amount paid H. Laurilliard, tuning and castors		3 50
April 22	Amount paid A. Hansen, work on grounds		43 50
April 22	Amount paid D. J. Hobson, watchman		12 50
April 22	Amount paid J. R. Lenox, hay		12 89
April 22	Amount paid J. A. Belloli, supplies for grounds		7 57
April 22	Amount paid J. Boschken, tools and hardware		6 93
April 22	Amount paid Geo. H. McDonald & Co., repairing windmills		14 00
April 22	Amount paid San José Foundry, repairs to engine		15 70
April 22	Amount paid John B. Alden, books for library		75 83
April 22	Amount paid C. H. Allen, horse		40 00
May 19	Amount paid for salaries for May, 1886		2,553 90
May 19	Amount paid Daunes & Van Doren, coal		128 50
May 19	Amount paid E. H. Guppy & Son, stationery and books		64 54
May 19	Amount paid H. W. A. Nahl, diplomas		38 50
May 19	Amount paid McNeil Bros., printed postals and paper cutting		8 35
May 19	Amount paid A. L. Bancroft & Co., books		22 00
May 19	Amount paid D. D. Merrill, books		9 20
May 19	Amount paid N. Y. Furniture Co., lounges		45 00
May 19	Amount paid Sterling Furniture Co., furniture		147 20
May 19	Amount paid Sterling Furniture Co., desk irons		21 55
May 19	Amount paid Schemmel & Denike, piano cover		8 00
May 19	Amount paid Geo. B. McKee & Co., paint, slating, etc.		7 45
May 19	Amount paid F. Schilling, locksmithing		3 00
May 19	Amount paid sundry persons, payroll on grounds for May, 1886		273 90
May 19	Amount paid D. J. Hobson, watchman		10 00
May 19	Amount paid R. D. Fox, trees and plants		69 00
May 19	Amount paid Otto Finger, plants, etc.		12 50
May 19	Amount paid John Rock, trees and plants		8 25
May 19	Amount paid J. Boschken, hardware and tools		8 95
May 19	Amount paid sundry persons, fittings for Preceptress' office		20 60
May 19	Amount paid C. H. Allen, sundries		12 35
May 19	Amount paid Farmers' Union, supplies for engine		2 25
June 17	Amount paid for salaries for June, 1886		2,503 90
June 17	Amount paid C. H. Allen, Commencement expenses, May, 1886		80 65
June 17	Amount paid Mrs. A. E. Bush, museum expenses		42 10
June 17	Amount paid R. Royce, Librarian, postage, express, etc.		78 90
June 17	Amount paid Sterling Furniture Co., library table		36 00
June 17	Amount paid S. J. Furniture Mfg. Co., repairing furniture		27 00
June 17	Amount paid A. Waldteufel, Encyclopædia Britanica, Vol. 20		10 50
June 17	Amount paid T. Soper, carpenter work		3 25
June 17	Amount paid Schemmel & Denike, tuning and repairing pianos		6 00
June 17	Amount paid John Stock Sons, hose, sprinklers, etc.		90 58
June 17	Amount paid L. A. Hihn, wood for engine		32 80
June 17	Amount paid Daunes & Van Doren, coal for engine		30 00
June 17	Amount paid H. Messing & Son, harness		10 75
June 17	Amount paid J. Boschken, tools and hardware		8 95
June 17	Amount paid C. T. Coyle, Engineer		25 00
June 17	Amount paid D. J. Hobson, watchman		10 00
June 17	Amount paid R. Royce, library expenditures		4 90
July 9	Amount paid sundry persons, payroll on grounds, June, 1886		212 00

FINANCIAL REPORT--Continued.

Date of Auditing.		Dr.	Cr.
1886.			
July 15	Amount paid San José Gas Company, gas 6 months, to June 30, 1886		$23 10
July 15	Amount paid Sunset Telephone Company, box rent, 6 months, to June 30, 1886		15 00
July 15	Amount paid J. C. Corcoran, plumbing repairs		36 80
July 15	Amount paid Goodyear Rubber Company, sheet rubber		16 50
July 15	Amount paid Chas. H. Parsons, finishing case		6 00
July 15	Amount paid R. P. Munroe, janitor, supplies		14 65
July 15	Amount paid J. C. Corcoran, plumbing on grounds		61 32
July 15	Amount paid G. Douglas, manure and loam		15 00
July 15	Amount paid Farmers' Union, tools and supplies for grounds		12 73
July 15	Amount paid A. F. Stevens, hose patches		3 00
Aug. 26	Amount paid Bank of San José, express and discount		25 10
	Balance of appropriation at close of 37th fiscal year		2,969 53
	Balance of Tuition Fund at close of 37th fiscal year		4,385 10
	Totals	$44,945 26	$44,945 26

SUMMARY OF ABOVE ACCOUNT.

	Dr.	Cr.
Total income for 37th fiscal year	$44,945 26	
Amount expended for salaries of Faculty and Janitor		$31,023 45
Amount expended for books and periodicals		277 43
Amount expended for stationery		426 41
Amount expended for furniture and apparatus		611 79
Amount expended for fuel and gas		1,023 11
Amount expended for general supplies		125 92
Amount expended for repairs and improvements		167 94
Miscellaneous expenditures		491 62
Total for school		$34,147 67
Expenditures for Grounds.		
Amount expended for salaries of gardener, watchman, and labor improving grounds		$2,170 90
Amount expended for general supplies for grounds		131 29
Amount expended for fuel for engine		248 48
Amount expended for tools and hardware		155 23
Amount expended for repairs to engine, windmills, tank houses, etc.		254 71
Amount expended for hose and sprinklers		107 58
Amount expended for seeds, trees, and plants		243 70
Amount expended for horse and harness		50 75
Amount expended for plumbing		61 32
Amount expended for manure and gravel		19 00
Total for grounds		$3,442 96
Balance of income at close of 37th fiscal year		$7,354 63
Totals	$44,945 26	$44,945 26

Appropriation for Increasing Water Supply and for the Care of the Grounds, San José, 37th and 38th Fiscal Years.

Date of Auditing.		Dr.	Cr.
1885.	Amount of appropriation	$4,000 00	
Aug. 20	Amount paid G. A. Paull, boring wells		$269 90
Aug. 20	Amount paid F. R. Morphy, building tank house		1,091 20
Aug. 20	Amount paid W. H. Ohmen, engine, boiler, and setting		850 50
Aug. 20	Amount paid W. H. Ohmen, smokestack and elbows		30 00
Aug. 20	Amount paid Daunes & Van Doren, material for setting engine		23 73
Aug. 20	Amount paid Louis C. W. Otto, bricks for setting engine		20 00
Aug. 20	Amount paid Chris. Hirth, safe around smokestack		25 25
Aug. 20	Amount paid M. Campbell, pump, pipe, setting, etc.		276 85
Aug. 20	Amount paid Farmers' Union, water-pipe, dipping, etc.		367 12
Aug. 20	Amount paid John Craven, gravel for roadway		779 80
Aug. 20	Amount paid J. C. Corcoran, plumbing		222 77
Aug. 20	Amount paid sundry persons, payroll, digging ditches for pipes		39 00
Aug. 20	Amount paid Herald and Times-Mercury, advertising for gravel		3 25
	Balance of appropriation		63
	Totals	$4,000 00	$4,000 00

Appropriation for Painting and Repairing the Normal School Building, San José, 37th Fiscal Year.

Date of Auditing.		Dr.	Cr.
1886.	Amount of appropriation	$1,500 00	
Jan. 14	Amount paid Milton Campbell, repairs to roof		$242 30
Jan. 14	Amount paid Geo. B. McKee & Co., paints, oils, etc.		421 95
Jan. 14	Amount paid J. P. Jarman, pay-roll, painting building		668 75
April 22	Amount paid Geo. B. McKee & Co., papering		150 00
May 19	Amount paid J. P. Jarman, painting library cases		17 00
	Totals	$1,500 00	$1,500 00

Appropriation for Additional Cases for the Museum of State Normal School, San José, 37th Fiscal Year.

Date of Auditing.		Dr.	Cr.
1885.	Amount of appropriation	$500 00	
Aug. 20	Amount paid T. J. Gillespie, cases		$60 00
Aug. 20	Amount paid Charles Parsons, varnishing cases		15 00
Nov. 12	Amount paid L. Bauer, specimen case		4 00
1886.			
April 12	Amount paid S. C. V. M. and L. Co., museum cases		284 45
June 17	Amount paid S. C. V. M. and L. Co., lumber for shelves and boxes		11 52
June 17	Amount paid T. Soper, putting up shelves		4 75
June 17	Amount paid George Denne, frames and trays		2 90
June 17	Amount paid E. H. Guppy & Son, paper, etc., for lining		1 75
June 17	Amount paid M. Chadbourne, carpenter work		9 00
June 17	Amount paid Max Waizman, boxes and trays		48 10
July 15	Amount paid Gillespie & Saph, specimen cases		24 00
July 15	Amount paid S. C. V. M. and L. Co., specimen cases		20 00
July 15	Amount paid John Stock Sons, aquarium		6 60
July 15	Amount paid Geo. B. McKee & Co., glazing and painting aquarium		3 40
July 15	Amount paid Justinian Caire, naturalists' vials		3 25
July 15	Amount paid Mrs. A. E. Bush, paid for finishing cases		1 28
	Totals	$500 00	$500 00

Appropriation for Use of the Library of State Normal School, San José, 37th and 38th Fiscal Years.

Date of Auditing.		Dr.	Cr.
1885.	Amount of appropriation	$1,000 00	
Sept. 18	Amount paid Julia M. Hare, agent, books		$12 50
Nov. 12	Amount paid George W. Welch, books		499 95
	Balance of appropriation at close of 37th fiscal year		487 55
	Totals	$1,000 00	$1,000 00

FINANCIAL REPORT

Of Branch Normal School, Los Angeles, for the Thirty-seventh Fiscal Year, ending June 30, 1886.

Date of Auditing.		Dr.	Cr.
1885.	*General Fund.*		
	Balance of petty cash fund on hand July 1, 1885, as per last report	$110 66	
	Amount of appropriation for thirty-seventh fiscal year	16,000 00	
	Amount of receipts for rent of rooms, tuition, and sundries, thirty-seventh fiscal year	158 00	
July 16	Amount paid for salaries for July, 1885		$1,033 40
Aug. 20	Amount paid for salaries for August, 1885		1,113 40
Aug. 20	Amount paid John F. Howard, carpenter work		37 50
Aug. 20	Amount paid Richardson & Son, paints and oil		4 45
Aug. 20	Amount paid F. H. Angell, slating and rep. blackboards		38 50
Aug. 20	Amount paid J. C. Nevin, Herbarium paper		47 35
Aug. 20	Amount paid V. Beaudry, water for July, 1885		5 03
Aug. 20	Amount paid Los Angeles Gas Company, gas for July, 1885		1 03
Aug. 20	Amount paid Sunset Telephone Company, putting in telephone, and rent for August, 1885		25 00
Aug. 20	Amount paid P. Boland, work on grounds		8 00
Sept. 18	Amount paid for salaries for September, 1885		1,113 40
Sept. 18	Amount paid Fireman's Fund Insurance Company, premium on $4,000		72 00
Sept. 18	Amount paid Union Insurance Company, premium on $4,000		72 00
Sept. 18	Amount paid V. Beaudry, water for August, 1885		13 91
Sept. 18	Amount paid Los Angeles Gas Company, gas for August, 1885		3 15
Sept. 18	Amount paid Samuel Wakeling, plastering		38 50
Sept. 18	Amount paid Sunset Telephone Company, rent for September, 1885		4 15
Sept. 18	Amount paid Phœnix Insurance Company, premium on $4,000		72 00
Sept. 18	Amount paid Theo. Wollweber, chemicals		27 67
Oct. 15	Amount paid for salaries for October, 1885		1,113 40
Oct. 15	Amount paid V. Beaudry, water for September, 1885		7 85
Oct. 15	Amount paid Los Angeles Gas Company, gas for September, 1885		5 25
Oct. 15	Amount paid Sunset Telephone Company, rent and service for October, 1885		5 10
Nov. 12	Amount paid for salaries for November, 1885		1,113 40
Nov. 12	Amount paid Phil. Hirschfeld, stationery, books, etc.		68 80
Nov. 12	Amount paid W. C. Furrey, hardware, Janitor supplies, etc.		17 25
Nov. 12	Amount paid H. Jevne, Janitor supplies		24 82
Nov. 12	Amount paid V. Beaudry, water for October, 1885		13 31
Nov. 12	Amount paid Los Angeles Gas Company, gas for October, 1885		5 25
Nov. 12	Amount paid Sunset Telephone Company, rent and service for November, 1885		5 35
Nov. 12	Amount paid M. S. Whitcomb, cultivating		6 00
Dec. 11	Amount paid for salaries for December, 1885		1,113 40
Dec. 11	Amount paid V. Beaudry, water for November, 1885		14 36
Dec. 11	Amount paid Los Angeles Gas Company, gas for November, 1885		5 25
Dec. 11	Amount paid Prang Educational Company, charts		11 03
Dec. 11	Amount paid J. A. Cline, mounting birds		12 00
1886.			
Jan. 14	Amount paid for salaries for January, 1886		1,083 40
Jan. 28	Amount paid H. W. A. Nahl, diplomas		18 00
Jan. 28	Amount paid O. W. Childs, rent of Opera House for commencement		25 00
Jan. 28	Amount paid F. Goldstein, filling diplomas		11 00
Jan. 28	Amount paid V. Beaudry, water for December, 1885		15 00

Date of Auditing.		Dr.	Cr.
1886.			
Jan. 28	Amount paid Los Angeles Gas Company, gas for December, 1885		$9 80
Jan. 28	Amount paid Sunset Telephone Company, rent for December, 1885		5 00
Jan. 28	Amount paid Sunset Telephone Company, rent and service for January, 1886		5 10
Jan. 28	Amount paid City of Los Angeles, water for irrigating		15 00
Jan. 28	Amount paid Wm. Dundberg, electrical apparatus and repairs		34 10
Jan. 28	Amount paid C. W. Gibson Company, glassware for museum and laboratory		49 35
Jan. 28	Amount paid C. W. Gibson Company, laboratory apparatus		13 70
Jan. 28	Amount paid W. C. Furrey, mats and scrapers		10 80
Jan. 28	Amount paid Ira More, expenses attending Board meeting		42 50
Feb. 18	Amount paid for salaries for February, 1886		1,083 40
Feb. 18	Amount paid V. Beaudry, water for January, 1886		14 16
Feb. 18	Amount paid Los Angeles Gas Company, gas for January, 1886		4 90
Feb. 18	Amount paid Sunset Telephone Company, rent and service for February, 1886		5 10
Feb. 18	Amount paid Phil. Hirschfeld, books and stationery		61 22
Feb. 18	Amount paid W. S. Reavis, periodicals		5 50
Feb. 18	Amount paid J. A. Cline, mounting birds		18 00
Mar. 18	Amount paid for salaries for March, 1886		1,133 40
Mar. 18	Amount paid V. Beaudry, water for February, 1886		14 51
Mar. 18	Amount paid Los Angeles Gas Company, gas for February, 1886		5 60
Mar. 18	Amount paid Sunset Telephone Company, rent and service for March, 1886		5 50
Mar. 18	Amount paid Walter S. Maxwell, coal		130 58
Mar. 18	Amount paid J. A. Cline, stuffed birds for museum		18 00
April 22	Amount paid for salaries for April, 1886		1,133 40
April 22	Amount paid V. Beaudry, water for March, 1886		9 93
April 22	Amount paid Sunset Telephone Co., rent and service for April, 1886		5 25
May 19	Amount paid for salaries for May, 1886		1,133 40
May 19	Amount paid H. W. A. Nahl, diplomas		31 50
May 19	Amount paid V. Beaudry, water for April, 1886		7 62
May 19	Amount paid Los Angeles City Water Co., water for April, 1886		4 00
May 19	Amount paid Sunset Telephone Co., rent and service for May, 1886		5 35
May 19	Amount paid J. A. Cline, stuffed birds		13 00
June 17	Amount paid for salaries for June, 1886		1,083 40
June 17	Amount paid Hirschfeld & Seldner, stationery and books		89 05
June 17	Amount paid J. Bond Francisco, fire extinguishers		18 00
June 17	Amount paid V. Beaudry, water for May		11 30
June 17	Amount paid Los Angeles City Water Co., water for May, 1886		8 95
June 17	Amount paid Los Angeles Gas Co., gas for May, 1886		4 20
June 17	Amount paid Sunset Telephone Co., rent for June, 1886		5 00
June 17	Amount paid A. C. Jones, rent of Opera House for Commencement		25 00
June 17	Amount paid Times-Mirror Co., programmes		12 00
June 17	Amount paid Day & Brown, sheet music		6 80
June 17	Amount paid P. W. Hurndale, tuning pianos		10 00
June 17	Amount paid F. H. Angell, repairing blackboards		5 00
July 9	Amount paid Ira More, expenses attending Board meeting		39 00
July 9	Amount paid Whittier, Fuller & Co., slating		9 65
July 9	Amount paid Los Angeles Gas Co., for March and April, 1886		6 30
July 15	Amount paid W. H. Perry M. & L. Co., lumber		49 59
July 15	Amount paid J. F. Howard, carpenter work		49 35

Financial Report—Continued.

Date of Auditing.		Dr.	Cr.
1886.			
July 15	Amount paid R. O. Taylor, plastering and repairs		$15 80
July 15	Amount paid Brown & Foster, hardware		10 50
July 15	Amount paid Henry Glass, binding magazines		3 70
Aug. 26	Amount paid Los Angeles City Water Co., water for June, 1886		6 85
Aug. 26	Amount paid V. Beaudry, water for June, 1886		3 56
Aug. 26	Amount paid Los Angeles Gas Co., gas for June, 1886		3 60
	Bills Paid by Ira More from Petty Cash Fund.		
	Amount paid for postage, express, advertising for proposals, and telegrams		57 40
	Amount paid for labor and tools on grounds		43 00
	Amount paid for Commencement expenses		17 80
	Amount paid for repairs and labor on building		21 95
	Amount paid for sundry supplies		6 15
	Amount paid for books and periodicals		13 12
	Amount paid for discount on warrants, for payment on contracts		52 50
	Balance of appropriation at close of 37th fiscal year		1,070 07
	Balance in petty cash fund at close of 37th fiscal year		56 74
		$16,268 66	$16,268 66

Summary of Above Account.

	Dr.	Cr.
Total income for 37th fiscal year	$16,268 66	
Amount expended for salaries of faculty and janitor		$13,250 80
Amount expended for water		165 34
Amount expended for gas		54 33
Amount expended for insurance		216 00
Amount expended for fuel		130 58
Amount expended for stationery		171 72
Amount expended for furniture and apparatus		129 48
Amount expended for putting in telephone, and rent of same eleven months		75 90
Amount expended for general supplies		84 14
Amount expended for books and periodicals		106 52
Amount expended for commencement expenses		147 10
Amount expended for museum		61 00
Amount expended for work on grounds		57 00
Amount expended for repairs and improvements to building		279 54
Miscellaneous expenses		212 40
Balance of income at close of 37th fiscal year		1,126 81
	$16,268 66	$16,268 66

Appropriation for additional furniture for the Branch Normal School, Los Angeles—Thirty-seventh and thirty-eighth Fiscal Years.

Date of Auditing.		Dr.	Cr.
1885.			
	Amount of appropriation	$1,000 00	
July 16	Amount paid Hellman, Stassforth & Co, desks		$492 84
Oct. 15	Amount paid W. H. Perry Mill and Lumber Co., lumber and mill work		10 43
Oct. 15	Amount paid John F. Howard, carpenter work		14 15
Nov. 12	Amount paid W. C. Furrey, stoves, pipe, etc.		50 85
Nov. 12	Amount paid M. W. Childs, stoves, pipe, etc.		34 80
Nov. 12	Amount paid W. H. Perry Mill and Lumber Co., geometrical forms		23 60
Nov. 12	Amount paid R. W. Pridham, specimen boxes		14 50
	Balance of appropriation at close of 37th fiscal year		358 83
		$1,000 00	$1,000 00

Appropriation for the purchase of books for the Library of the Branch Normal School, Los Angeles—Thirty-seventh and thirty-eighth Fiscal Years.

Date of Auditing.		Dr.	Cr.
1885.			
	Amount of appropriation	$1,000 00	
Dec. 11	Amount paid Dewing & Co., 19 vols. Encyclopædia Britanica		$102 60
Dec. 11	Amount paid Henry Glass, binding magazines		30 60
1886.			
Jan. 28	Amount paid George W. Welch, books		645 52
Jan. 28	Amount paid J. C. Oliver, books		8 00
Feb. 18	Amount paid S. E. Cassino, Natural History		42 00
Mar. 18	Amount paid A. L. Bancroft & Co., 5 vols. Bancroft's History		27 50
	Balance of appropriation at close of 37th fiscal year		143 78
		$1,000 00	$1,000 00

Appropriation for the purchase of cases for the Museum of the Branch Normal School, Los Angeles—Thirty-seventh and thirty-eighth Fiscal Years.

Date of Auditing.		Dr.	Cr.
1885.			
	Amount of appropriation	$1,000 00	
Aug. 20	Amount paid Newton, Chaplin & Co., glass for cases		$98 30
Aug. 20	Amount paid Brown & Foster, Hardware Co., hardware for cases		49 32
Aug. 20	Amount paid John F. Howard, carpenter work on cases		138 75
Aug. 20	Amount paid Ed. Quine, carpenter work on cases		126 00
Aug. 20	Amount paid Eugene S. Bailey, carpenter work on cases		105 00
Aug. 20	Amount paid Joseph Gastreich, painting cases		85 30
Aug. 27	Amount paid W. H. Perry Mill and Lumber Co., lumber for cases		309 36
Aug. 27	Amount paid Richardson & Son, paints and oils, etc., for cases		87 05
	Balance of appropriation at close of 37th fiscal year		92
		$1,000 00	$1,000 00

Appropriation for Bulkheading, Fencing, and Improving the Grounds of the Branch Normal School, Los Angeles—Thirty-seventh and Thirty-eighth Fiscal Years.

Date of Auditing.		Dr.	Cr.
1886.			
	Amount of appropriation	$10,000 00	
Feb. 18	Amount paid W. R. Norton, plan and specifications		$100 00
April 22	Amount paid Los Angeles Herald, advertising		13 00
April 22	Amount paid Frank Casey, trees and planting		12 80
April 22	Amount paid S. M. Perry, altering water pipe		8 00
April 22	Amount paid Patrick J. Boland, grading, on account		200 00
May 19	Amount paid Bly & Son, stonework, on account		1,000 00
May 19	Amount paid Patrick J. Boland, grading, on account		200 00
May 19	Amount paid Patrick J. Boland, grading, on account		300 00
May 19	Amount paid Weinshank & Knox, plumbing		109 55
May 19	Amount paid Times-Union Company, advertising		9 10
June 17	Amount paid Bly & Son, stonework, on account		1,000 00
June 17	Amount paid P. J. Boland, grading, on account		300 00
June 17	Amount paid A. Dallas, grading Fifth Street		231 00
June 17	Amount paid S. M. Perry, lowering water pipe		7 00
July 15	Amount paid Bly & Son, stonework, on account		1,000 00
	Balance of appropriation at close of 37th fiscal year		5,509 55
	Totals	$10,000 00	$10,000 00

Appropriation for the Payment of a Gardener at the Grounds of the Branch Normal School, Los Angeles—Thirty-seventh and Thirty-eighth Fiscal Years.

Date of Auditing.		Dr.	Cr.
1885.			
	Amount of appropriation	$1,200 00	
Aug. 20	Amount paid Chas. Chowler, work on grounds		$27 50
Sept. 18	Amount paid I. Mitschler, work on grounds		31 50
Sept. 18	Amount paid Geo. McFadden, treating trees for insects		109 80
1886.			
Jan. 28	Amount paid M. S. Whitcomb, work on grounds		10 50
Jan. 28	Amount paid M. S. Whitcomb, work on grounds		10 00
Mar. 18	Amount paid M. S. Whitcomb, work on grounds		22 00
April 22	Amount paid M. S. Whitcomb, work on grounds		21 00
June 17	Amount paid M. S. Whitcomb, work on grounds		10 00
	Balance of appropriation at close of 37th fiscal year		957 70
	Totals	$1,200 00	$1,200 00

Submitted by Executive Committee.

RALPH LOWE,
T. ELLARD BEANS,
L. ARCHER,
Executive Committee.

REPORT OF PRINCIPAL OF STATE NORMAL SCHOOL, SAN JOSE.

To the Board of Trustees of the California State Normal School:

Gentlemen: I have the honor to submit the following report of the Normal School in San José, under your charge, for the school year ending May 20, 1886:

STATISTICAL.

During the year there have applied for admission two hundred and sixteen pupils. These applied for and were admitted to classes, as given below:

Applied for Senior Class	10	Admitted to Senior Class	1
Applied for Second Term, Middle Class	14	Admitted to Second Term, Middle Class	2
Applied for First Term, Middle Class	35	Admitted to First Term, Middle Class	20
Applied for Second Term, Junior Class	41	Admitted to Second Term, Junior Class	47
Applied for First Term, Junior Class	116	Admitted to First Term, Junior Class	107
Total number examined	216	Total number admitted	177

Rejected, or assigned to Preparatory Class	39
Holders of Grammar School Diplomas admitted to Junior B	44
Holders of Grammar School Diplomas admitted on examination to higher classes	15
Holders of High School Diplomas admitted to Junior B	2
Holders of High School Diplomas admitted on examination to higher classes	19
Graduates of other institutions admitted	5
Admitted by transfer from Branch Normal School	2

Many of those admitted to Junior Classes were pupils who had applied for admission to advanced classes. Applicants for admission have represented thirty-four counties of this State, and two other States.

Forty-five counties of California have had representatives in the school during the past year.

The counties not represented are Alpine, Inyo, Los Angeles, Mendocino, San Bernardino, Tehama, and Ventura.

Besides students residing in this State, there have been representatives from five other States and three Territories. Of these, fifteen are from the State of Nevada.

The highest enrollment during the year was 453, in August; average enrollment, 430; average daily attendance, 421; average percentage of attendance, 98.1; average percentage of punctuality, 99.6.

GENERAL.

The two classes graduated during the year—one, numbering forty-five, in December, and one, numbering fifty-three, in May—go out as the first complete result of the changes made in our course of study.

The additional work done in the Training Department has made them, in one sense, experienced teachers. Five months' observation, for which the pupil is held strictly responsible, and five months' actual practice, under judicious and searching criticism, are worth more to the embryo teacher, in the way of experience, than years of practice without supervision.

As we have recommended none for graduation who have not successfully passed this ordeal, we feel confident that these graduates will make excellent teachers.

The question constantly arises, "Where are your graduates to find places? The State is already overcrowded with teachers." This question implies, if it does not assert, that the Normal Schools are sending out too many teachers.

For the surplus of teachers, if such a surplus exist, the Normal Schools are not responsible. The largest classes graduated do not furnish two teachers per year to a county, and this would hardly make good the death rate, to say nothing of marriages and other accidents. There are two other sources which furnish a large number of teachers.

There is a constant influx of teachers from the east, drawn here by our charming climate, or more often by the higher salaries paid here. But the most prolific source is the semi-annual county examination. With from four to twenty teachers licensed at each examination, it is not strange that the ranks are overcrowded.

These candidates are usually prepared for the examination in grammar or high schools, and sometimes in so called normal classes. Their preparation is likely to be for an *examination* rather than for *teaching*; but being at or near their homes, they secure positions, and often fill them to the satisfaction of the patrons.

Although this state of things may seem to work a temporary evil (by trusting the education of children to untrained teachers), it is an evil that will, in the end, remedy itself, by working out the problem of the "survival of the fittest." People are already beginning to find the difference between trained and untrained teachers; and as this difference becomes more apparent, trained teachers will be more and more in demand.

As I have previously reported to you, our graduates find situations very soon after graduation; and what is still more gratifying, in many cases, they make themselves so useful that they continue in the same school from year to year. And yet it is doubtless true that an over-supply of teachers means a small diminution of attendance in the Normal Schools, and it is because of this fact that I have presented the foregoing discussion.

Three years ago a resolution was adopted requiring all graduates of the school to report to the school twice each year for three years after graduation, and once a year thereafter so long as they continue in the work of teaching. Since the adoption of the resolution all graduates have signed a pledge to make such reports. As a result, we have reports from these classes and from a large number who graduated before this requirement was made.

These reports are very valuable in the statistical information which they give, and will form a part of the permanent records of the school. In addition to this, they show that the graduates have a high appreciation of what the State has done for them, and a desire on their part to repay this with their very best endeavors.

In conclusion, gentlemen, I feel that it is due here to say, that the loss of Professor Norton to the school has been felt even more than we anticipated, and that the remembrance of what he was, and what he did while associated with us, is a constant inspiration.

With thanks to you for your cordial support and valuable suggestions, and to the faculty for their earnest and faithful labors,

I am, gentlemen, very respectfully, your obedient servant,

CHARLES H. ALLEN, Principal.

San José, May, 1886.

REPORT OF PRINCIPAL OF THE BRANCH NORMAL SCHOOL, LOS ANGELES.

To the honorable State Normal Board of California:

Gentlemen: The Branch Normal School is closing its fourth year of fairly successful work. Its numbers for each year, since its commencement in 1882, are:

1882–83	127
1883–84	187
1884–85	231
1885–86	252

A class of 22 in number was graduated at the end of the Fall term, December 17, 1885. And we now present a class of 21 for graduation, they having completed in full the course of study and discipline prescribed by you for the normal schools of the State. Graduates for the school year of 1885–86, 43.

We notice an increased willingness to enter the lower classes of the school on being admitted, and a disposition to drop quietly out or down, when the student finds he is not making a satisfactory record in the class to which he has been assigned. There is also a marked improvement in the qualifications of those seeking admission to the school. This is due, no doubt, to a rapid improvement in the public schools of this portion of the State, and a consequent tendency of the students to remain in them until the grammar grade of studies is fully completed.

The duty of the normal school is to fit its students for doing good and thorough work, both moral and intellectual, in the public schools. It is a training entirely distinct in its methods and aims, from that which seeks to prepare students for passing examinations; though, incidentally, the normal graduate should be able to pass any examination required of others. But it is the hardest possible road leading to a certificate. No person, with his eyes open, and wishing a certificate only, should ever enter a normal school. It would be easy to take our lowest Junior class, and by efforts, shaped to that purpose alone, fit them in a year for passing the county examinations triumphantly; but they would not be teachers—only school keepers, who might in a series of years, by experience, and close observation of the methods of others in schools and institutes, and much good reading of teachers' manuals and educational periodicals—a course taken by the few, but sure to be neglected by the many—become good and competent instructors of our public schools.

The question of granting teachers' certificates to the graduates of State normal schools, without examination, except such as the school itself gives, has been subject to long and sometimes acrimonious debate, and no approach has yet been made toward its solution. Among the States with old and well established normal schools, New York, Kansas, Michigan, Missouri, Nebraska, New Jersey, Pennsylvania, Vermont, and Wisconsin, accept the diplomas of their normal schools as sufficient evidence of fitness to teach; while Massachusetts, Connecticut, Illinois, Indiana, Iowa, Maine, Minnesota, New Hampshire, and Rhode Island, give the normal pupil no advantage from the diploma he holds, but subject him to the same examinations required of others. That the normal school is not vitally interested in the way in which this question is decided, is shown in the fact that the normal schools of the last named States are as fully attended, and take equal rank in all respects, with those of the first named States, where they are apparently more favored. This was well shown in Minnesota, when, in 1870, the diplomas of the normal schools, which had before been State certificates, ceased to be so, it made a scarcely perceptible difference in the status of those schools.

In this State previous to 1880, State certificates of the first grade were granted upon full normal school diplomas; and when the new Constitution took the power of granting certificates from the State Board of Education, and conferred it upon the County Boards alone, those Boards were empowered to grant, in their discretion, certificates upon California Normal School diplomas, and to fix the grade thereof. Most counties avail themselves of this permission, and grant such certificates; three only, so far as I can learn, declining to do so, out of the fifty-two counties in the State. It is much to be desired that uniform action should be taken by County Boards of Education upon this subject, as the refusal of these limited areas to conform to the general custom, compels a very unequal distribution of our graduates in the State, teachers naturally preferring to go to those counties where they are spared the trouble and expense of passing the examinations required.

The use of certain grades of the city schools for Training School purposes, has been very satisfactory during the past year, and will, I hope, be continued for the year to come.

The water supply, previously defective, has been made full and abundan by the introduction of the Beaudry water into the building. The drainage is very perfect, and all the conditions of health seem to attach to the school and its surroundings. The appropriation made by the last Legislature for the purpose, is being used for grading the grounds and building the needful retaining walls. When the coming years shall have done their work in the growth of trees, we trust these grounds will compare favorably with others of like size and use throughout the country.

Very respectfully submitted.

IRA MORE, Principal.

Los Angeles, May, 1886.

26552·1